USER MANUAL

ES95/ES96/ES99/ST71T

SAMSUNG

Click a topic

This user manual includes detailed usage instructions for your camera. Please read this manual thoroughly.

Basic troubleshooting | Quick reference | Contents

Basic functions | Extended functions | Shooting options

Playback/Editing | Settings | Appendixes

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Health and safety information

Always comply with the following precautions and usage tips to avoid dangerous situations and ensure peak performance of your camera.

Warning—situations that could cause injury to yourself or others

Do not disassemble or attempt to repair your camera.
This may result in electric shock or damage to the camera.

Do not use your camera near flammable or explosive gases and liquids.
This may cause a fire or explosion.

Do not insert flammable materials into the camera or store these materials near the camera.
This may cause a fire or electric shock.

Do not handle your camera with wet hands.
This may result in electric shock.

Prevent damage to subjects' eyesight.
Do not use the flash in close proximity (closer than 1 m/3 ft) to people or animals. If you use the flash too close to your subject's eyes, you can cause temporary or permanent eyesight damage.

Keep your camera away from small children and pets.
Keep your camera and all accessories out of the reach of small children and animals. Small parts may cause choking or serious injury if swallowed. Moving parts and accessories may present physical dangers as well.

Do not expose the camera to direct sunlight or high temperatures for an extended period of time.
Prolonged exposure to sunlight or extreme temperatures can cause permanent damage to your camera's internal components.

Avoid covering the camera or charger with blankets or clothes.
The camera may overheat, which may distort the camera or cause a fire.

Do not handle the power supply cord or go near the charger during a thunderstorm.
This may result in electric shock.

If liquid or foreign objects enter your camera, immediately disconnect all power sources, such as the battery or charger, and then contact a Samsung service center.

Caution—situations that could cause damage to your camera or other equipment

Remove the batteries from your camera when storing it for an extended period of time.
Installed batteries may leak or corrode over time and cause serious damage to your camera.

Use only authentic, manufacturer-recommended, Lithium-ion replacement batteries. Do not damage or heat the battery.
Inauthentic, damaged, or heated batteries may cause a fire or personal injury.

Use only Samsung-approved batteries, chargers, cables and accessories.
- Using unauthorized batteries, chargers, cables or accessories can cause batteries to explode, damage your camera, or cause injury.
- Samsung is not responsible for damage or injuries caused by unapproved batteries, chargers, cables or accessories.

Use the battery only for its intended purpose.
Misusing the battery may cause a fire or electric shock.

Do not touch the flash while it fires.
The flash is very hot when fired and may burn your skin.

When you use the AC charger, turn off the camera before you disconnect the power to the AC charger.
Failing to do so may result in fire or electric shock.

Disconnect the charger from the wall socket when not in use.
Failing to do so may result in fire or electric shock.

Do not use a damaged power supply cord, plug, or loose outlet when you charge batteries.
This may cause a fire or electric shock.

Do not allow the AC charger to come in contact with the +/- terminals on the battery.
This may cause a fire or electric shock.

Do not drop or subject the camera to strong impacts.
Doing so may damage the screen or external or internal components.

Exercise caution when you connect cables or adapters and install batteries and memory cards.
If you force the connectors, improperly connect cables, or improperly install batteries and memory cards, you can damage ports, connectors, and accessories.

Keep cards with magnetic strips away from the camera case.
Information stored on the card may be damaged or erased.

Never use a damaged charger, battery, or memory card.
This may result in electric shock or camera malfunction or cause a fire.

Do not place the camera in or near magnetic fields.
Doing so may cause the camera to malfunction.

Do not use the camera if the screen is damaged.
If the glass or acrylic parts are broken, visit a Samsung Electronics Service Center to have the camera repaired.

Check that the camera is operating properly before use.
The manufacturer takes no responsibility for any loss of files or damage that may result from camera malfunction or improper use.

You must plug the small end of the USB cable into your camera.
If the cable is reversed, it may damage your files. The manufacturer is not responsible for any loss of data.

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- Camera specifications or contents of this manual may be changed without prior notice due to an upgrade of the camera's functions.
- Use this camera responsibly and adhere to all laws and regulations concerning its use.
- You are not allowed to reuse or distribute any part of this manual without prior permission.

Outline of the User Manual

Basic functions 12

Learn about your camera's layout, icons, and basic functions for shooting.

Extended functions 32

Learn how to capture a photo and record a video by selecting a mode.

Shooting options 48

Learn how to set the options in Shooting mode.

Playback/Editing 70

Learn how to play back photos or videos, and edit photos. Also, learn how to connect your camera to your computer.

Settings 93

Refer to options to configure your camera's settings.

Appendixes 98

Get information about error messages, specifications, and maintenance.

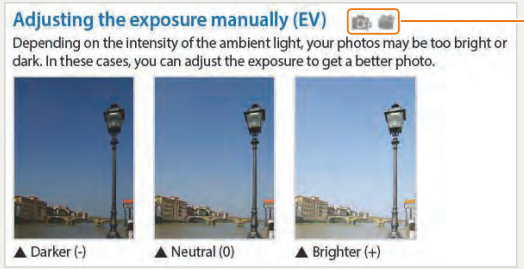
Indicators used in this manual

Shooting mode	Indicator
Smart Auto	
Program	
Live Panorama	
Picture in Picture	
Scene	
Movie	

Shooting mode icons

These icons appear in the text when a function is available in a mode. See the example below.
Note: The SCENE mode may not support functions for all scenes.

For example:


Adjusting the exposure manually (EV)
Depending on the intensity of the ambient light, your photos may be too bright or dark. In these cases, you can adjust the exposure to get a better photo.
▲ Darker (-)
▲ Neutral (0)
▲ Brighter (+)

Available in Program and Movie modes

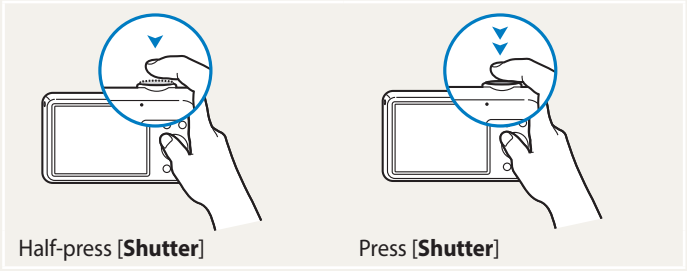
Icons used in this manual

Icon	Function
	Additional information
	Safety warnings and precautions
[ ]	Camera buttons. For example, [**Shutter**] represents the shutter button.
( )	Page number of related information
→	The order of options or menus you must select to perform a step; for example: Select → **Photo Size** (represents Select , and then select **Photo Size**).
*	Annotation

Expressions used in this manual

Pressing the shutter

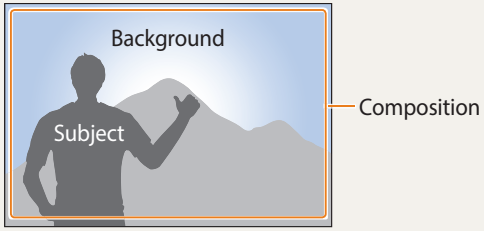
- Half-press [**Shutter**]: Press the shutter halfway down
- Press [**Shutter**]: Press the shutter all the way down



Half-press [**Shutter**] Press [**Shutter**]

Subject, background, and composition

- **Subject**: The main object in a scene, such as a person, animal, or still life
- **Background**: The objects around the subject
- **Composition**: The combination of a subject and background



Exposure (Brightness)

The amount of light that enters your camera determines the exposure. You can alter the exposure by changing the shutter speed, aperture value, or ISO sensitivity. By altering the exposure, your photos will be darker or lighter.

▲ Normal exposure

▲ Overexposure (too bright)

Basic troubleshooting

Learn to solve common problems by setting shooting options.

The subject's eyes appear red.	Red eye occurs when the subject's eyes reflect light from the camera flash. • Set the flash option to **Red-eye** or **Red-eye Fix**. (p. 52) • If the photo has already been captured, select **Red-eye Fix** in the edit menu. (p. 83)
Photos have dust spots.	If dust particles are present in the air, you may capture them in photos when you use the flash. • Turn off the flash or avoid capturing photos in a dusty place. • Set ISO sensitivity options. (p. 54)
Photos are blurred.	Blurring can occur if you capture photos in low light conditions or hold the camera incorrectly. Use the DIS function or half-press [**Shutter**] to ensure the subject is in focus. (p. 30)
Photos are blurred when shooting at night.	As the camera tries to let in more light, the shutter speed slows. This can make it difficult to hold the camera steady long enough to capture a clear photo and may result in camera shake. • Select **Night** in SCENE mode. (p. 39) • Turn on the flash. (p. 52) • Set ISO sensitivity options. (p. 54) • Use a tripod to prevent your camera from shaking.
Subjects come out too dark because of backlighting.	When the light source is behind the subject or when there is a high contrast between light and dark areas, the subject may appear too dark. • Avoid shooting toward the sun. • Select **Backlight** in SCENE mode. (p. 39) • Set the flash option to **Fill in**. (p. 52) • Adjust the exposure. (p. 61) • Set the Auto Contrast Balance (ACB) option. (p. 62) • Set the metering option to **Spot** if a subject is in the center of the frame. (p. 63)

Quick reference

Capturing photos of people

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- SCENE mode > Beauty Shot ▶ 40
- SCENE mode > Intelligent Portrait ▶ 41
- Red-eye/Red-eye Fix (to prevent or correct red-eye) ▶ 52
- Face Detection ▶ 58
- Self-Portrait ▶ 58

Capturing photos at night or in the dark

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- ISO sensitivity (to adjust the sensitivity to light) ▶ 54

Capturing action photos

- Continuous, Motion Capture ▶ 66

Capturing photos of text, insects, or flowers

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- Macro ▶ 55

Adjusting the exposure (brightness)

- ISO sensitivity (to adjust the sensitivity to light) ▶ 54
- EV (to adjust exposure) ▶ 61
- ACB (to compensate for subjects against bright backgrounds) ▶ 62
- Metering ▶ 63
- AEB (to capture 3 photos of the same scene with different exposures) ▶ 66

Capturing photos of scenery

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- SCENE mode > Landscape ▶ 39

Applying effects to photos

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Basic functions

Learn about your camera's layout, icons, and basic functions for shooting.

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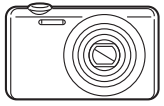
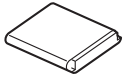
Unpacking

The following items are included in your product box.



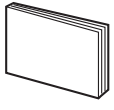
Camera

AC adapter/USB cable



Rechargeable battery

Strap

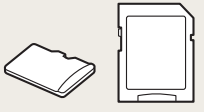


Quick Start Guide

Optional accessories

Camera case

Battery charger

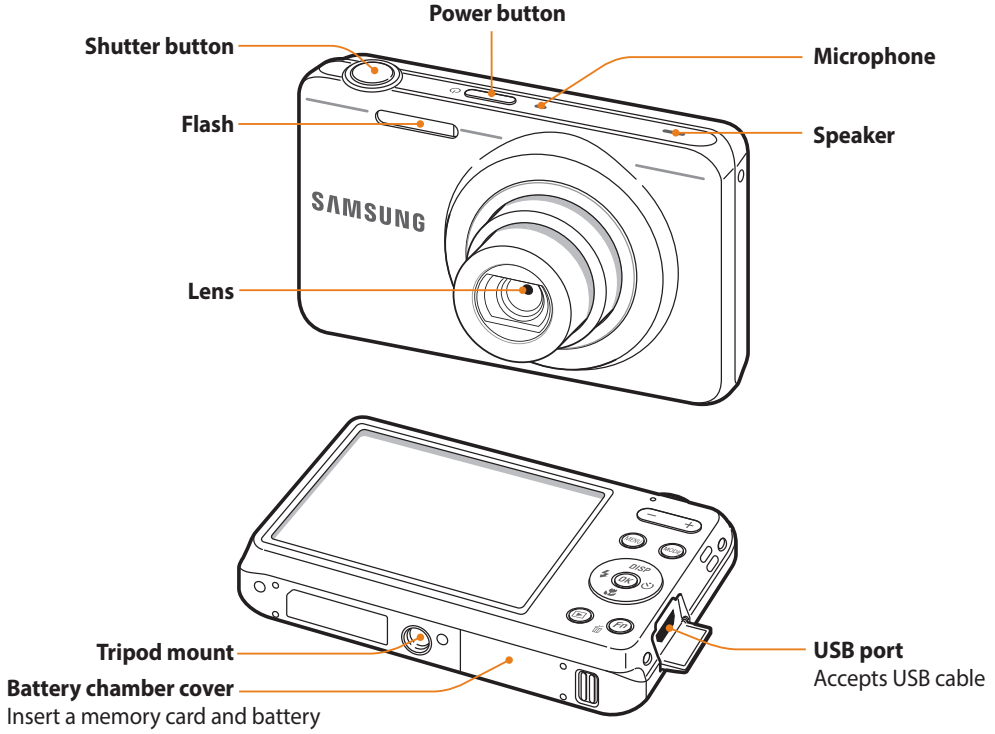


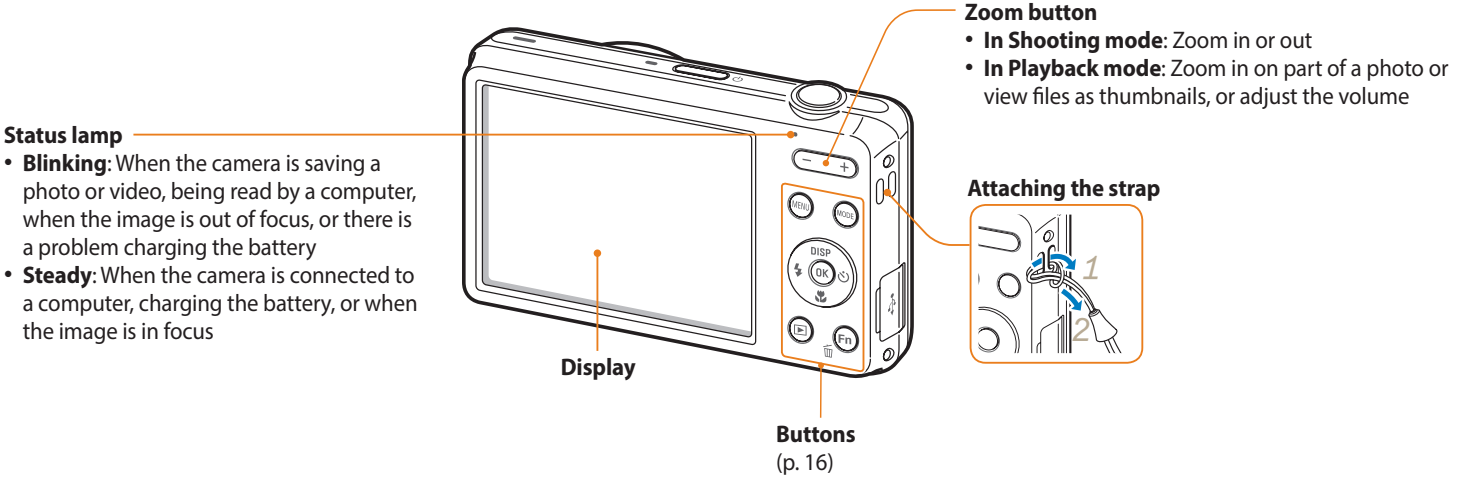
Memory card/
Memory card adapter

- The illustrations may differ slightly from the items shipped with your product.
- The items included in the box may differ depending on the model.
- You can purchase optional accessories at a retailer or a Samsung service center. Samsung is not responsible for any problems caused by using unauthorized accessories.

Camera layout

Before you start, familiarize yourself with your camera's parts and their functions.




Zoom button
• In Shooting mode: Zoom in or out
• In Playback mode: Zoom in on part of a photo or view files as thumbnails, or adjust the volume
Status lamp
• Blinking: When the camera is saving a photo or video, being read by a computer, when the image is out of focus, or there is a problem charging the battery
• Steady: When the camera is connected to a computer, charging the battery, or when the image is in focus
Attaching the strap
Display
Buttons
(p. 16)

Buttons

Button	Description
MENU	Access options or menus.
MODE	Select a shooting mode.

Mode	Description
SMART	**Smart Auto**: Capture a photo with a scene mode selected automatically by the camera.
P	**Program**: Capture a photo with settings you have set manually.
	Live Panorama: Capture and combine a series of photos to create a panoramic image.
	Picture in Picture: Capture or select a full-sized background photo, and then insert a smaller photo into the foreground to create a synthesized photo.
SCENE	**Scene**: Capture a photo with options preset for a specific scene.
	Movie: Record a video.

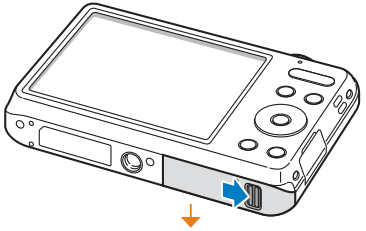
Button	Description
DISP / OK	

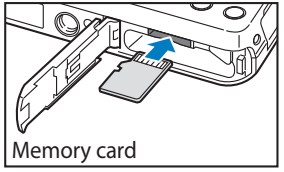
	Basic functions	Other functions
DISP	Change the display option.	Move up
	Change the macro option.	Move down
	Change the flash option.	Move left
	Change the timer option.	Move right

Button	Description
OK	Confirm the highlighted option or menu.
	Enter Playback mode.
Fn	• Access options in Shooting mode. • Delete files in Playback mode.

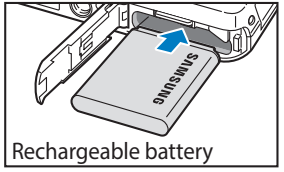
Inserting the battery and memory card

Learn how to insert the battery and an optional memory card into the camera.

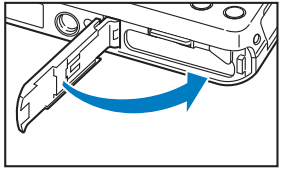


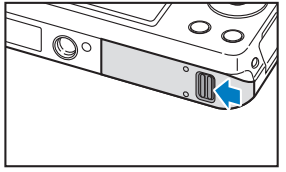


Insert a memory card with the gold-colored contacts facing up.

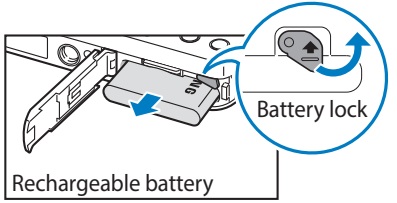


Insert the battery with the Samsung logo facing up.

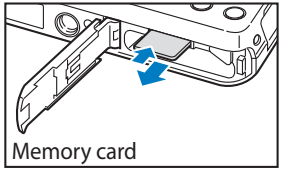




Removing the battery and memory card



Slide the lock up to release the battery.



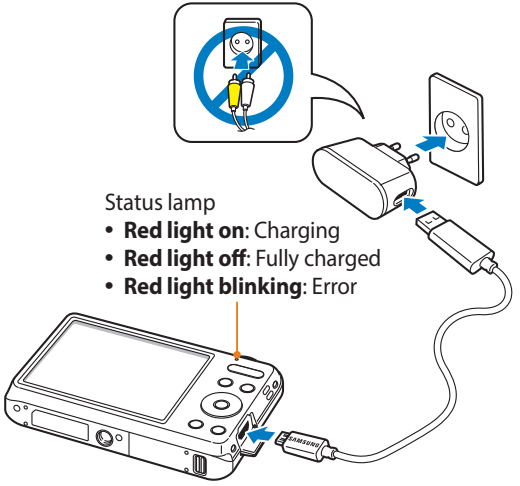
Push the card gently until it disengages from the camera, and then pull it out of the slot.

You can use the internal memory for temporary storage if a memory card is not inserted.

Charging the battery and turning on your camera

Charging the battery

Before you use the camera for the first time, you must charge the battery. Plug the small end of the USB cable into your camera, and then plug the other end of the USB cable into the AC adapter.

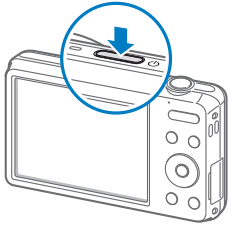


Use only the AC adapter and USB cable supplied with your camera. If you use another AC adapter (such as SAC-48), the camera battery may not charge or work properly.

Turning on your camera

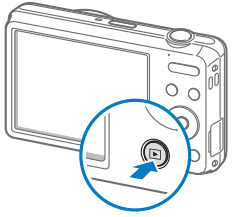
Press [⏻] to turn your camera on or off.

- The initial setup screen appears when you turn on the camera for the first time. (p. 19)



Turning on your camera in Playback mode

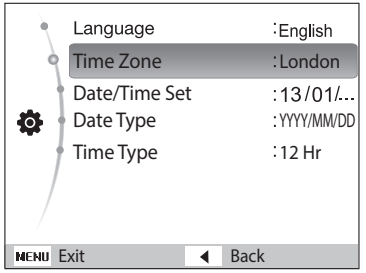
Press [▶]. The camera turns on and immediately accesses Playback mode.



Performing the initial setup

When you turn on your camera for the first time, the initial setup screen appears. Follow the steps below to configure the camera's basic settings. The language is preset for the country or region where the camera is sold. You can change the language as desired.

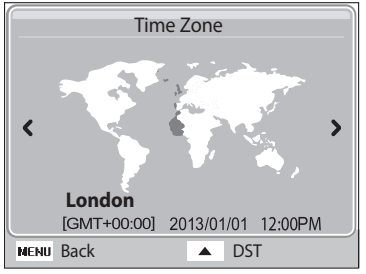
1 Press [⏲] → [🌷] to select **Time Zone**, and then press [⏲] or [**OK**].



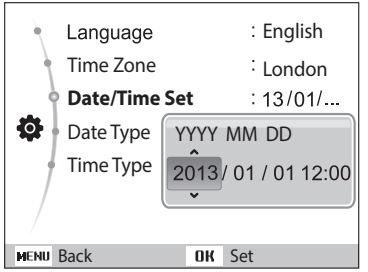
- The screen may differ depending on the language selected.

2 Press [⚡/⏲] to select a time zone, and then press [**OK**].

- To set daylight-savings time, press [**DISP**].



3 Press [**DISP**/🌷] to select **Date/Time Set**, and then press [⏲] or [**OK**].



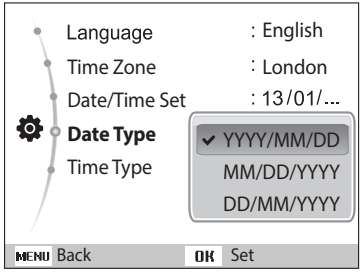
- The screen may differ depending on the language selected.

4 Press [⚡/⏲] to select an item.

5 Press [**DISP**/🌷] to set the date and time, and then press [**OK**].

6 Press [**DISP**/] to select **Date Type**, and then press [] or [**OK**].

7 Press [**DISP**/] to select a date type, and then press [**OK**].



- The default date type may differ depending on the language selected.

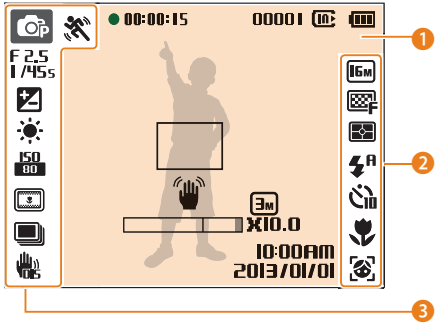
8 Press [**DISP**/] to select **Time Type**, and then press [] or [**OK**].

9 Press [**DISP**/] to select a time type, and then press [**OK**].

10 Press [**MENU**] to finish the initial setup.

Learning icons

The icons the camera displays on the screen change according to the mode you select or the options you set. If you change a shooting option, the corresponding icon will blink briefly in orange.



1 Shooting information

Icon	Description
00:00:15	Available recording time
00001	Available number of photos
	Memory card not inserted (Internal memory)
	Memory card inserted
	• : Fully charged • : Partially charged • : Empty (Recharge)
	Auto focus frame

Icon	Description
	Camera shake
3M	Photo resolution when Intelli zoom is on
	Zoom indicator
X10.0	Zoom ratio
10:00AM 2013/01/01	Current time and date

2 Shooting options (right)

Icon	Description
16M	Photo resolution
HD	Video resolution
30	Frame rate
F	Photo quality
	Metering
A	Flash
10	Timer
	Auto focus option
	Face detection

3 Shooting options (left)

Icon	Description
	Actively moving subject
P	Shooting mode
F2.5 1/45s	Aperture value and shutter speed
LT	Long time shutter
	EV (Exposure Value)
	White balance
	Face tone
	Face retouch
ISO 80	ISO sensitivity
	Smart filter
	Image adjust (contrast, sharpness, and saturation)
	Sound Alive on
	Burst option
DIS	Digital Image Stabilization (DIS)

Selecting options or menus

To select an option or a menu, press [**MENU**] or [**Fn**].

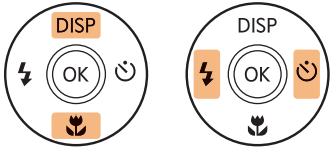
Using [MENU]

To select options, press [**MENU**], and then press [**DISP**/🌷/⚡/⏲] or [**OK**].

1 In Shooting or Playback mode, press [**MENU**].

2 Select an option or a menu.

- To move up or down, press [**DISP**] or [🌷].
- To move left or right, press [⚡] or [⏲].



3 Press [**OK**] to confirm the highlighted option or menu.

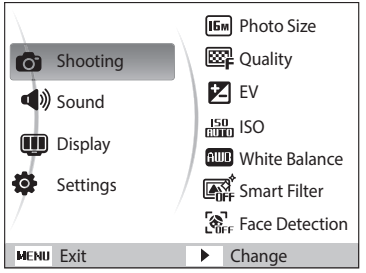
Press [**MENU**] to go back to the previous menu. Half-press [**Shutter**] to return to Shooting mode.

For example, to select a White Balance option in Program mode:

1 In Shooting mode, press [**MODE**].

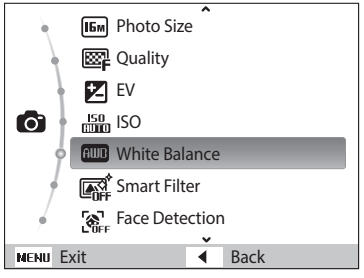
2 Select P.

3 Press [**MENU**].

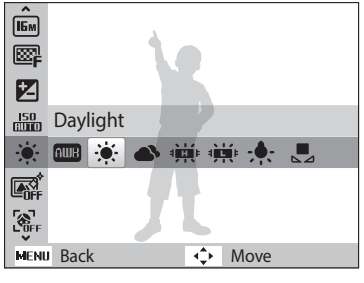


4 Press [**DISP**/🌷] to select 📷, and then press [⏲] or [**OK**].

5 Press [**DISP**/] to select **White Balance**, and then press [] or [**OK**].



6 Press [/] to select a White Balance option.



7 Press [**OK**] to save your settings.

Using [Fn]

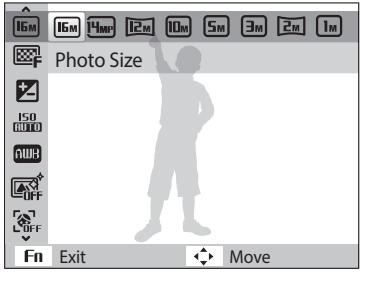
You can access shooting options by pressing [**Fn**], but some options are not available.

For example, to select a White Balance option in Program mode:

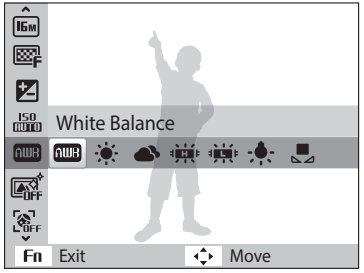
1 In Shooting mode, press [**MODE**].

2 Select .

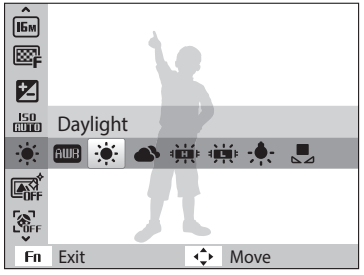
3 Press [**Fn**].



4 Press [DISP/] to scroll to AWB.



5 Press [/] to select a White Balance option.



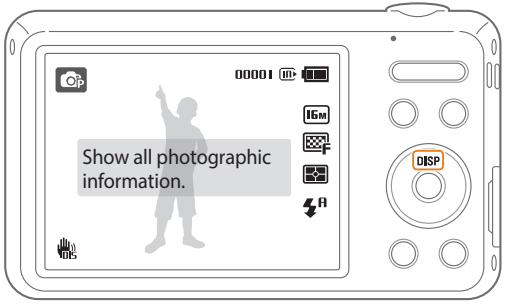
6 Press [OK] to save your settings.

Setting the display and sound

Learn how to change the basic display information and sound settings.

Setting the display type

You can select a display type for the Shooting or Playback mode. Each type displays different shooting or playback information. See the table below.



Press [**DISP**] repeatedly to change the display type.

Mode	Display type
Shooting	• Hide all information about shooting options. • Show all information about shooting options.
Playback	• Hide all information about the current file. • Show information about the current file, except the shooting settings. • Show all information about the current file.

Setting the sound

Turn the sound your camera emits when you perform functions.

1 In Shooting or Playback mode, press [**MENU**].

2 Select → **Beep Sound**.

3 Select an option.

Option	Description
Off	The camera does not emit any sounds.
1/2/3	The camera emits sounds.

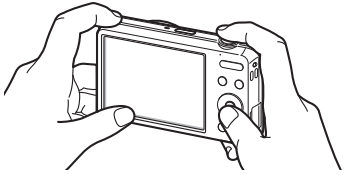
Capturing photos

Learn how to capture photos easily and quickly in Smart Auto mode.

1 In Shooting mode, press [**MODE**].

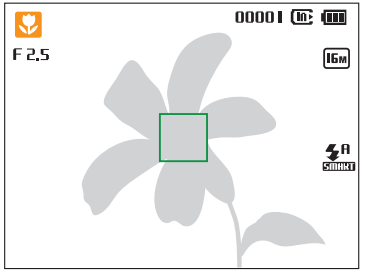
2 Select SMART.

3 Align your subject in the frame.



4 Half-press [**Shutter**] to focus.

- A green frame means the subject is in focus.
- A red frame means the subject is out of focus.



5 Press [**Shutter**] to capture a photo.

6 Press [▶] to view the captured photo.

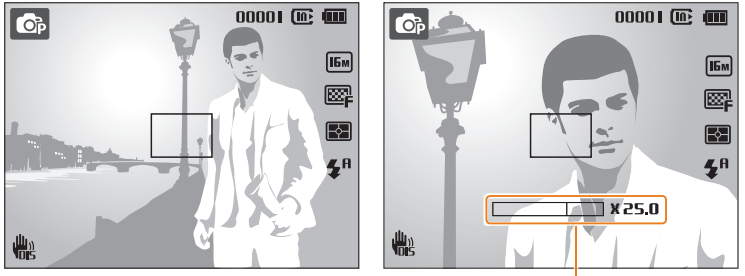
- To delete the photo, press [**Fn**], and then select **Yes**.

7 Press [▶] to return to Shooting mode.

See page 30 for tips to get clearer photos.

Zooming

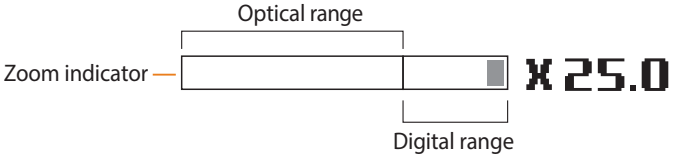
You can capture close-up photos by adjusting the zoom.



- The longer you press the zoom button, the faster the camera zooms in or out.
- When you press the zoom button, the zoom ratio shown on the screen may change inconsistently.

Digital zoom

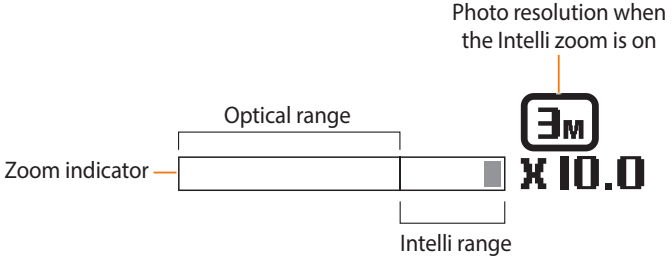
The Digital zoom is supported by default in Shooting mode. If you zoom in on a subject in Shooting mode and the zoom indicator is in the digital range, your camera is using the Digital zoom. By using both the 5X Optical zoom and 5X Digital zoom, you can zoom in up to 25 times.



- The Digital zoom is not available with the Smart Filter effect or Tracking AF option.
- If you capture a photo with the Digital zoom, the photo quality may be lower than normal.

Intelli zoom

If the zoom indicator is in the Intelli range, your camera is using the Intelli zoom. Photo resolution varies according to the zoom rate if you use the Intelli zoom. By using both the Optical zoom and Intelli zoom, you can zoom in up to 10 times.



- The Intelli zoom is not available with the Smart Filter effect or Tracking AF option.
- The Intelli zoom helps you capture a photo with less quality deterioration than the Digital zoom. However, the photo quality may be lower than when you use the Optical zoom.
- The Intelli zoom is available only when you set a 4:3 resolution ratio. If you set another resolution ratio with Intelli zoom on, the Intelli zoom will be turned off automatically.
- The Intelli zoom feature is always on in Smart Auto mode.

Setting Intelli zoom

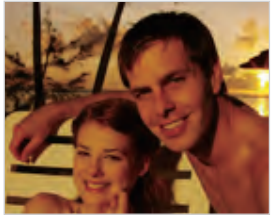
1. In Shooting mode, press [**MENU**].
2. Select → **Intelli Zoom**.
3. Select an option.

Icon	Description
	Off: The Intelli zoom is deactivated.
	On: The Intelli zoom is activated.

Reducing camera shake (DIS)

Reduce camera shake digitally in Shooting mode.

▲ Before correction



▲ After correction

1 In Shooting mode, press [**MENU**].

2 Select → **DIS**.

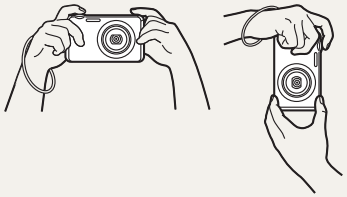
3 Select an option.

Icon	Description
	Off: DIS is deactivated.
	On: DIS is activated.

- DIS may not function properly when:
  - you move your camera to follow a moving subject
  - you use the Digital zoom
  - there is too much camera shake
  - the shutter speed is slow (for example, when you capture night scenes)
  - the battery is low
  - you capture a close-up shot
- If the camera is hit or dropped, the display will be blurry. If this occurs, turn off the camera, and then turn it on again.
- The DIS function is not available when you set Burst option.

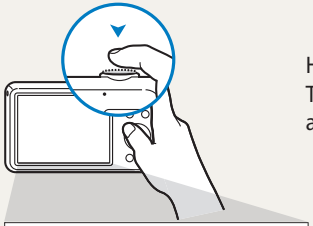
Tips for getting a clearer photo

Holding your camera correctly

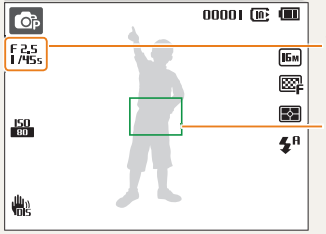


Ensure nothing is blocking the lens, flash, or microphone.

Half-pressing the shutter button



Half-press [**Shutter**] and adjust the focus. The camera adjusts the focus and exposure automatically.



The camera sets the aperture value and shutter speed automatically.

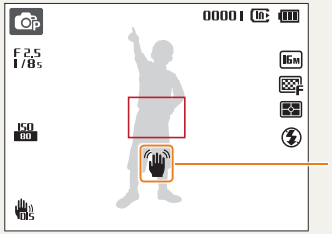
Focus frame

- Press [**Shutter**] to capture the photo if the focus frame appears in green.
- Change the composition and half-press [**Shutter**] again if the focus frame appears in red.

Reducing camera shake

Set the Digital Image Stabilization option to reduce camera shake digitally. (p. 29)

When is displayed



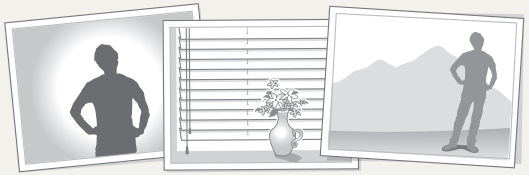
Camera shake

When you shoot in the dark, avoid setting the flash option to **Slow Sync** or **Off**. The aperture remains open longer and it may be harder to hold the camera steady long enough to capture a clear photo.

- Use a tripod or set the flash option to **Fill in**. (p. 52)
- Set ISO sensitivity options. (p. 54)

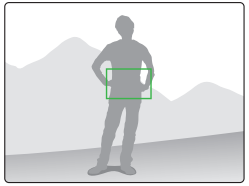
Preventing your subject from being out of focus

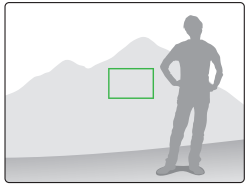
It may be difficult to get your subject in focus when:
- there is little contrast between the subject and background (for example, when your subject is wearing clothing that is similar in color to the background)
- the light source behind the subject is too bright
- the subject is shiny or reflective
- the subject includes horizontal patterns, such as blinds
- the subject is not positioned in the center of the frame



Using the focus lock

Half-press [**Shutter**] to focus. When the subject is in focus, you can reposition the frame to change the composition. When you are ready, press [**Shutter**] to capture your photo.

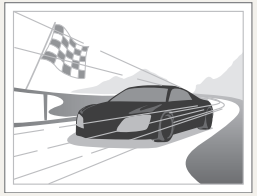




- When you capture photos in low light

Turn on the flash. (p. 52)

- When subjects are moving rapidly



Use the Continuous or Motion Capture function. (p. 66)

Extended functions

Learn how to capture a photo and record a video by selecting a mode.

Using the Smart Auto mode 33
Using the Program mode 35
Using the Live Panorama mode 36
Using the Picture-in-Picture mode 38
Using the Scene mode 39
Using the Magic Frame mode 40
Using the Beauty Shot mode 40
Using the Intelligent Portrait mode 41
Using the Funny Face mode 42
Using the Night mode 43
Using the Movie mode 45
Using the Smart Scene Detection mode 46

Using the Smart Auto mode

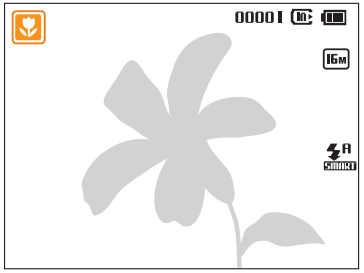
In Smart Auto mode, your camera automatically chooses the appropriate camera settings based on the type of scene it detects. The Smart Auto mode is helpful if you are not familiar with the camera settings for various scenes.

1 In Shooting mode, press [**MODE**].

2 Select SMART.

3 Align your subject in the frame.

- The camera automatically selects a scene. An appropriate scene icon appears at the top left of the screen. The icons are listed below.



Icon	Description
	Landscapes
	Scenes with bright white backgrounds
	Landscapes at night
	Portraits at night
	Landscapes with backlighting
	Portraits with backlighting
	Portraits
	Close-up photos of objects
	Close-up photos of text
	Sunsets
	Blue skies
	Forested areas
	Close-up photos of colorful subjects
	Camera is stabilized or on a tripod (when shooting in the dark)
	Actively moving subjects

4 Half-press [**Shutter**] to focus.

5 Press [**Shutter**] to capture the photo.

- If the camera does not recognize an appropriate scene mode, it uses the default settings for the Smart Auto mode.
- Even if it detects a face, the camera may not select a portrait mode depending on the subject's position or lighting.
- The camera may not select the correct scene depending on the shooting conditions, such as camera shake, lighting, or distance to the subject.
- Even if you use a tripod, the camera may not detect the mode if the subject is moving.
- The camera consumes more battery power, because it changes settings often to select appropriate scenes.

Using the Program mode

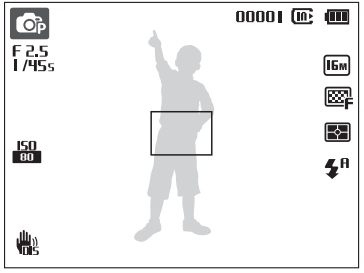
In Program mode, you can set most options, except the shutter speed and aperture value, which the camera sets automatically.

1 In Shooting mode, press [**MODE**].

2 Select .

3 Set the desired options.
- For a list of options, refer to "Shooting options". (p. 48)

4 Align your subject in the frame, and then half-press [**Shutter**] to focus.



5 Press [**Shutter**] to capture the photo.

Using the Live Panorama mode

In Live Panorama mode, you can capture a wide panoramic scene in a single photo. Capture and combine a series of photos to create a panoramic image.

▲ Shooting example

1 In Shooting mode, press [**MODE**].

2 Select .

3 Align your subject in the frame, and then half-press [**Shutter**] to focus.

- Align the camera with the far left or the far right, or very top or bottom, of the scene you want to capture.

4 Press and hold [**Shutter**] to start shooting.

5 With [**Shutter**] pressed, slowly move the camera in the direction that will let it capture the rest of the panorama.

- Arrows toward the direction of motion are displayed, and the entire shooting image is displayed in the preview box.
- When the scenes are aligned, the camera captures the next photo automatically.

6 When you are finished, release [**Shutter**].

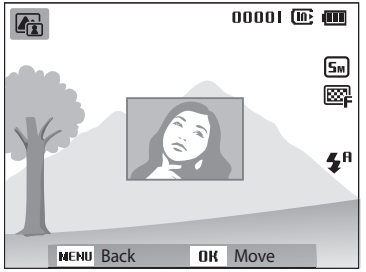
- When you have captured all the necessary shots, the camera combines them into one panoramic photo.

- For best results when capturing panoramic photos, avoid the following:
  - moving the camera too quickly or too slowly
  - moving the camera too little to capture the next image
  - moving the camera at irregular speeds
  - shaking the camera
  - shooting in dark places
  - capturing moving subjects nearby
  - shooting conditions where the brightness or color of light is changing
- Photos taken are automatically saved, and shooting is stopped under the following conditions:
  - if you change the shooting direction while shooting
  - if you move the camera too rapidly
  - if you don't move the camera
- Selecting Live Panorama mode will disable the Digital and Optical zoom functions. If you select Live Panorama mode while the lens is zoomed in, the camera automatically zooms out to the default position.
- Some shooting options are not available.
- The camera may stop shooting due to the shooting composition or movement within the scene.
- Your camera may not capture the last scene in its entirety if you stop moving the camera exactly where you want the scene to end. To capture the entire scene, move your camera slightly beyond the point where you want the scene to end.

Using the Picture-in-Picture mode

In the Picture-in-Picture mode, you can capture or select a full-sized background photo, and then insert a smaller photo into the foreground.

1. In Shooting mode, press [**MODE**].
2. Select .
3. Half-press [**Shutter**] to focus, and then press [**Shutter**] to capture the photo.
   - To select a background photo from your saved photos, press [**MENU**], and then select → **Open Image** → a desired photo. You cannot select a video file or a photo captured in Live Panorama mode.
4. Press [**OK**] to set the photo as a background image.
   - To recapture a background photo, press [**MENU**].
5. Press [**OK**], and then press [**DISP**/ / /] to change the insertion point.



6. Press [**OK**], and then press [**DISP**/ / /] to change the insertion size.
7. Press [**OK**] to save the setting.
8. Half-press [**Shutter**] to focus, and then press [**Shutter**] to capture and insert a photo.
   - The insertion window appears larger when you half-press [**Shutter**], so that you can determine whether or not the subject is in focus.
9. To view the synthesized photo, press [ ].
   - Press [ ] again to return to Shooting mode.

- When capturing background photos, the resolution is automatically set to and all photos captured are saved.
- The final Picture-in-Picture photos are saved as one combined file and the inserted photos are not saved separately.
- When inserting an image, the resolution for the combined file is automatically set to .
- When capturing a background photo, a photo captured in the vertical position does not rotate automatically.
- The maximum size of the insertion window is 1/4 of the screen, and the aspect ratio stays the same when changing the size.
- The focus distance options are not available.

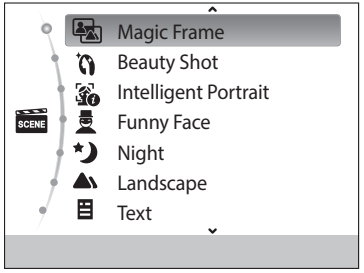
Using the Scene mode

In Scene mode, you can capture a photo with options that are preset for a specific scene.

1 In Shooting mode, press [**MODE**].

2 Select SCENE.

3 Select a scene.



Option	Description
Magic Frame	Capture scenes with various frame effects. (p. 40)
Beauty Shot	Capture a portrait with options to hide facial imperfections. (p. 40)
Intelligent Portrait	Automatically extract and save close-up portraits of an individual subject in a scene. (p. 41)
Funny Face	Capture a photo with funny face effects. (p. 42)
Night	Capture scenes at night or in low lighting (using a tripod is recommended). (p. 43)
Landscape	Capture still-life scenes and landscapes.
Text	Clearly capture text from printed or electronic documents.
Sunset	Capture scenes at sunset, with natural-looking reds and yellows.
Dawn	Capture scenes at sunrise.
Backlight	Capture backlit subjects.
Beach & Snow	Reduce underexposure of subjects caused by sunlight reflected from sand or snow.

- To change a scene mode, press [**MENU**], and then select SCENE. You can select any of the scenes listed.

4 Align your subject in the frame, and then half-press [**Shutter**] to focus.

5 Press [**Shutter**] to capture the photo.

Using the Magic Frame mode

In Magic Frame mode, you can apply various frame effects to your photos. The shape and the feel of the photos will change according to the frame you select.

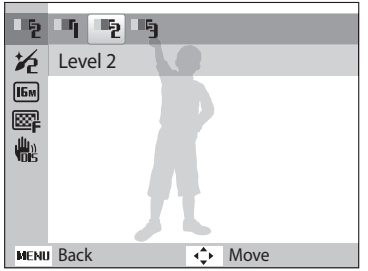
1 In Shooting mode, press [**MODE**].
2 Select SCENE → **Magic Frame**.
3 Press [**MENU**].
4 Select → **Frame**.
5 Select an option.
6 Align your subject in the frame, and then half-press [**Shutter**] to focus.
7 Press [**Shutter**] to capture the photo.

The resolution is automatically set to 2M.

Using the Beauty Shot mode

In Beauty Shot mode, you can capture a portrait with options to hide facial imperfections.

1 In Shooting mode, press [**MODE**].
2 Select SCENE → **Beauty Shot**.
3 Press [**MENU**].
4 Select → **Face Tone**.
5 Select an option.
- For example, increase the face tone setting to make skin appear lighter.

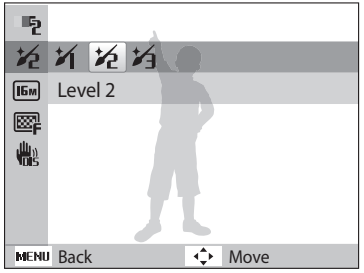


6 Press [**MENU**].

7 Select → **Face Retouch**.

8 Select an option.

- For example, increase the face retouch setting to hide more imperfections.



9 Align your subject in the frame, and then half-press [**Shutter**] to focus.

10 Press [**Shutter**] to capture the photo.

The focus distance will be set to Auto Macro.

Using the Intelligent Portrait mode

In Intelligent Portrait mode, you can extract and save close-up portraits of an individual subject in a scene. Once the camera detects a face from the scene, it automatically enlarges it and crops the image around the face. The camera then saves the full scene and two close-up portraits as three separate files.

1 In Shooting mode, press [**MODE**].

2 Select → **Intelligent Portrait**.

3 Align your subject in the frame, and then half-press [**Shutter**] to focus.

4 Press [**Shutter**] to capture the photo.

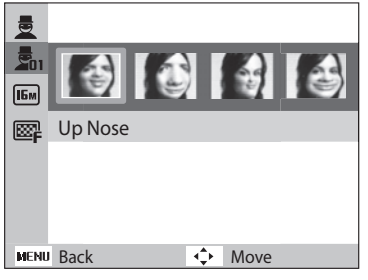
- The original photo and 2 cropped photos are showed on the display instantly and saved under consecutive file names.

- The Intelligent Portrait mode will save only the original photo if:
  - no face is detected
  - more than 2 faces are detected
  - the detected facial area is larger than a certain ratio
- Cropped photos will be saved with the same aspect ratio (16:9) as the original or the inverse aspect ratio (9:16).
- The focus distance will be set to Auto Macro.

Using the Funny Face mode

In Funny Face mode, you can distort your subject's face with funny effects.

1. In Shooting mode, press [**MODE**].
2. Select SCENE → **Funny Face**.
3. Aim the camera at the subject's face.
   - The camera detects faces with the face detection function.
4. Press [**MENU**].
5. Select → **Funny Effect** → a funny effect.
   - You can review the face with the effect applied on the display.



6 Press [**MENU**].

7 Select → **Distortion Level**.

8 Adjust the distortion level.

9 Align your subject in the frame, and then half-press [**Shutter**] to focus.

10 Press [**Shutter**] to capture the photo.

- The Funny Face mode does not work if the camera cannot detect a face.
- If the camera detects 2 or more faces, the effect will be applied only to the face nearest the camera.
- The focus distance options are not available.

Using the Night mode

In Night mode, you can use a slow shutter speed to extend the time the shutter stays open. Increase the aperture value to prevent overexposure.

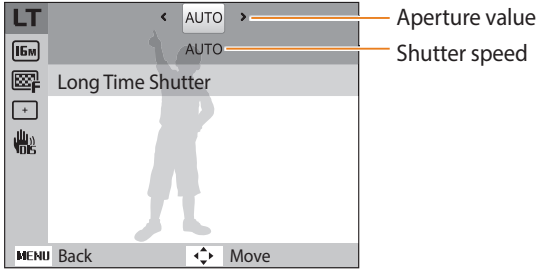
1 In Shooting mode, press [**MODE**].

2 Select → **Night**.

3 Press [**MENU**].

4 Select → **Long Time Shutter**.

5 Select the aperture value or shutter speed.



6 Select an option.
- If you select **AUTO**, the aperture value or shutter speed will be adjusted automatically.

7 Align your subject in the frame, and then half-press [**Shutter**] to focus.

8 Press [**Shutter**] to capture the photo.

- Use a tripod to prevent blurry photos.
- The focus distance options are not available.

Using the Movie mode

In Movie mode, you can record HD videos of up to 20 minutes in length. When the size of a movie file exceeds 4 GB, the camera automatically stops recording even if the maximum recording time has not been reached. The camera saves recorded videos as MJPEG files.

- If you use memory cards with slow write speeds, the camera may not save videos properly. Video recordings may be corrupted or fail to play back correctly.
- Memory cards with slow writing speeds will not support high-resolution videos. To record high-resolution videos, use memory cards with faster write speeds.
- If you use the zoom function when recording a video, the camera may record the noise of the zoom operating. To decrease zoom noise, use the Sound Alive function. See Steps 7 and 8 below.

1 In Shooting mode, press [**MODE**].

2 Select 🎥.

3 Press [**MENU**].

4 Select 🎥 → **Frame Rate**.

5 Select a frame rate (the number of frames per second).
- As the frame rate increases, action appears more natural, but the file size also increases.

6 Press [**MENU**].

7 Select 🎥 → **Sound Alive**.

8 Select a Sound Alive option.

Icon	Description
	Sound Alive On: Turn on the Sound Alive function to reduce the zoom noise.
OFF	**Sound Alive Off**: Turn off the Sound Alive function. The camera can record the zoom noise.
	Mute: Do not record sounds.

- Do not block the microphone when you use the Sound Alive function.
- Recordings made with Sound Alive may differ from actual sounds.

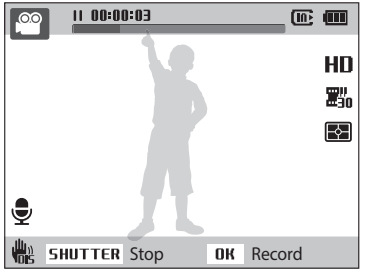
9 Set desired options.
- For a list of options, refer to "Shooting options". (p. 48)

10 Press [**Shutter**] to start recording.

11 Press [**Shutter**] again to stop recording.

Pause recording

The camera allows you to temporarily pause a video while recording. With this function, you can record separate scenes as a single video.

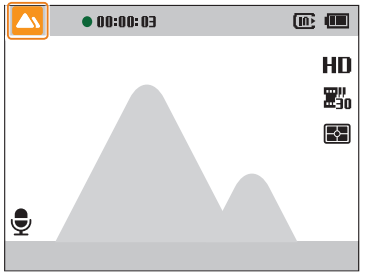


- Press [**OK**] to pause while recording.
- Press [**OK**] to resume.

Using the Smart Scene Detection mode

In Smart Scene Detection mode, your camera automatically chooses the appropriate camera settings based on the scene it has detected.

1. In Shooting mode, press [**MODE**].
2. Select .
3. Press [**MENU**].
4. Select → **Smart Scene Detection** → **On**.
5. Align your subject in the frame.
   - The camera automatically selects a scene. An appropriate scene icon will appear at the top left of the screen.



Icon	Description
	Landscapes
	Sunsets
	Blue skies
	Forested areas

6 Press [**Shutter**] to start recording.

7 Press [**Shutter**] again to stop recording.

- If the camera does not recognize an appropriate scene mode, it uses the default settings for the Smart Scene Detection mode.
- The camera may not select the correct scene depending on the shooting conditions, such as camera shake, lighting, and distance to the subject.
- Smart Filter effects are not available.

Shooting options

Learn how to set the options in Shooting mode.

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Selecting a resolution and quality

Learn how to change the image resolution and quality settings.

Selecting a resolution

As you increase the resolution, your photo or video will include more pixels, so it can be printed on larger paper or displayed on a larger screen. When you use a high resolution, the file size will also increase.

Setting the photo resolution

1 In Shooting mode, press [**MENU**].

2 Select → **Photo Size**.

3 Select an option.

Icon	Description
16M	**4608 X 3456**: Print on A1 paper.
14M	**4608 X 3072**: Print on A1 paper in wide ratio (3:2).
12M	**4608 X 2592**: Print on A2 paper in panorama ratio (16:9) or play back on an HDTV.
10M	**3648 X 2736**: Print on A3 paper.
5M	**2592 X 1944**: Print on A4 paper.
3M	**1984 X 1488**: Print on A5 paper.
2M	**1920 X 1080**: Print on A5 paper in panorama ratio (16:9) or play back on an HDTV.
1M	**1024 X 768**: Attach to an email.

Setting the video resolution

1 In Video Shooting mode, press [**MENU**].

2 Select → **Movie Size**.

3 Select an option.

Icon	Description
HD	**1280 X 720 HQ**: High-quality files to play back on an HDTV.
VGA	**640 X 480**: Files to play back on an analog TV.
QVGA	**320 X 240**: Post on a web page.

Selecting an image quality

Set a photo quality setting. Higher image quality settings will result in larger file sizes. The camera compresses and saves the photos you capture in the JPEG format.

Setting the photo quality

1 In Shooting mode, press [**MENU**].

2 Select → **Quality**.

3 Select an option.

Icon	Description
	Super Fine: Capture photos in super high quality.
	Fine: Capture photos in high quality.
	Normal: Capture photos in normal quality.

Setting the video quality

The camera compresses and saves the videos you record in MJPEG format.

1 In Video Shooting mode, press [**MENU**].

2 Select → **Frame Rate**.

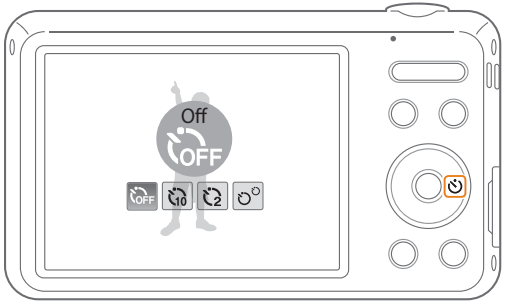
3 Select an option.

Icon	Description
	30 fps: Record 30 frames per second.
	15 fps: Record 15 frames per second.

Using the timer

Learn how to set the timer to delay shooting.

1 In Shooting mode, press [⏲].



2 Select an option.

Icon	Description
	Off: The timer is not active.
	10 Sec: Capture a photo after a 10-second delay.
	2 Sec: Capture a photo after a 2-second delay.
	Double: Capture one photo after a 10-second delay and another photo after a 2-second delay.

Available options may differ depending on the shooting conditions.

3 Press [**Shutter**] to start the timer.

- The camera will automatically capture a photo after the specified time has elapsed.

- Press [**Shutter**] or [⏲] to cancel the timer.
- Depending on the Face Detection options or the Focus Area options you selected, the timer function may not be available.
- Timer options are not available if you set Burst options.

Shooting in the dark

Learn how to capture photos at night or in low light conditions.

Preventing red-eye

When the flash fires when you capture a photo of a person in the dark, a red glow may appear in the person's eyes. To prevent this, select **Red-eye** or **Red-eye Fix**. Refer to flash options in "Using the flash".

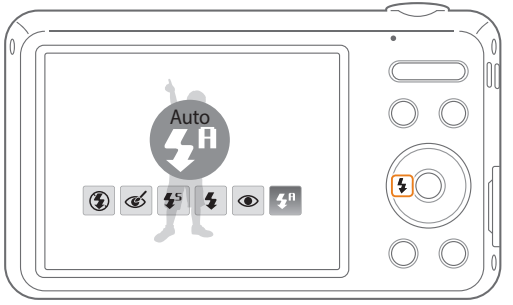
▲ Before correction

▲ After correction

Using the flash

Use the flash when you capture photos in the dark or when you need more light in your photos.

1 In Shooting mode, press [ϟ].



2 Select an option.

Icon	Description
	Off: • The flash will not fire. • The camera will display the shake warning when you are shooting in low light.

Icon	Description
	Red-eye Fix: • The flash fires twice when the subject or background is dark. The camera corrects red-eyes through its advanced software analysis. • There is an interval between the 2 bursts of the flash. Do not move until the flash fires a second time.
	Slow Sync: • The flash fires and the shutter stays open longer. • This option is recommended when you want to capture more ambient light to reveal more details in the background. • Use a tripod to prevent your photos from blurring. • The camera will display the shake warning when you are shooting in low light.
	Fill in: • The flash always fires. • The camera automatically adjusts light intensity.
	Red-eye: • The flash will fire twice when the subject or background is dark to reduce the red-eye effect. • There is an interval between the 2 bursts of the flash. Do not move until the flash fires a second time.

Icon	Description
	Auto: The flash will fire automatically when the subject or background is dark.
	Auto: The camera will select a proper flash setting for the scene it detects in Smart Auto mode.

Available options may differ depending on the shooting conditions.

- Flash options are not available if you set Burst options or select **Self-Portrait** or **Blink Detection**.
- Make sure that your subjects are within the recommended distance from the flash. (p. 113)
- If light from the flash is reflected or there is a substantial amount of dust in the air, tiny spots may appear in your photo.

Adjusting the ISO sensitivity

The ISO sensitivity is the measure of a film's sensitivity to light as defined by the International Organization for Standardization (ISO). The higher ISO sensitivity you select, the more sensitive to light your camera becomes. Use a higher ISO sensitivity to capture better photos and reduce camera shake when not using the flash.

1 In Shooting mode, press [**MENU**].

2 Select → **ISO**.

3 Select an option.

- Select ISO AUTO to use an appropriate ISO sensitivity based on the brightness of the subject and lighting.

Higher ISO sensitivities may result in more image noise.

Changing the camera's focus

Learn how to adjust the camera's focus to suit the subject and the shooting conditions.

Using macro

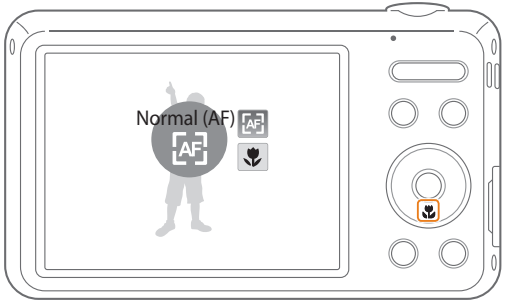
Use macro to capture close-up photos of subjects, such as flowers or insects.

- Try to hold the camera firmly to prevent blurry photos.
- Turn off the flash if the distance to the subject is less than 15.7 in. (40 cm).

Using auto focus

To capture sharp photos, select the appropriate focus option according to your distance from the subject.

1 In Shooting mode, press [ ].



2 Select an option.

Icon	Description
	Normal (AF): Focus on a subject farther than 31 in. (80 cm) away. Farther than 98 in. (250 cm) away when you use the zoom.
	Macro: Focus on a subject that is 2-31 in. (5–80 cm) from the camera. 39–98 in. (100–250 cm) when you use the zoom.
	Auto Macro: • Focus on a subject farther than 2 in. (5 cm) away. Farther than 39 in. (100 cm) away when you use the zoom. • Auto Macro is set automatically in some modes. You cannot set it manually.

Available options may differ depending on the shooting conditions.

Adjusting the focus area

You can get clearer photos by selecting an appropriate focus area according to your subject's location in the scene.

1 In Shooting mode, press [**MENU**].

2 Select → **Focus Area**.

3 Select an option.

Icon	Description
	Center AF: Focus on the center of the frame (suitable when subjects are located at or near the center).
	Multi AF: Focus on one or more of 9 possible areas.
	Tracking AF: Focus on and track the subject. (p. 57)

Available options may differ depending on the shooting conditions.

Using tracking auto focus

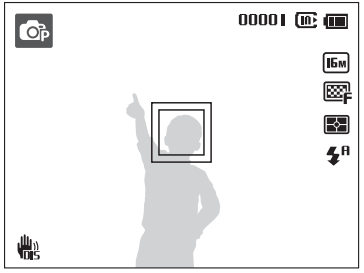
Tracking AF allows you to track and automatically focus on your subject, even when you are moving.

1 In Shooting mode, press [**MENU**].

2 Select → **Focus Area** → **Tracking AF**.

3 Focus on the subject you want to track, and then press [**OK**].

- A focus frame appears on the subject and follows the subject as you move the camera.



- The white frame means that your camera is tracking the subject.
- When you half-press [**Shutter**], the green frame means that your subject is in focus.
- The red frame means that your camera failed to focus.

4 Press [**Shutter**] to capture the photo.

- If you do not select a focus area, the focus frame will appear in the center of the screen.
- Tracking a subject may fail when:
  - the subject is too small
  - the subject moves excessively
  - the subject is backlit or you are shooting in a dark place
  - colors or patterns on the subject and the background are the same
  - the subject includes horizontal patterns, such as blinds
  - the camera shakes excessively
- When tracking fails, the feature will be reset.
- If the camera fails to track the subject, you must reselect the subject to track.
- If the camera fails to focus, the focus frame will change to red and the focus will be reset.
- If you use this function, you cannot set Face Detection options, Timer options, Intelli zoom, and Smart Filter effects.

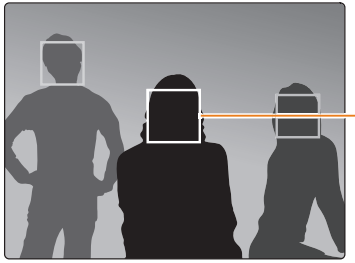
Using Face Detection

If you use Face Detection options, your camera can automatically detect a human face. When you focus on a human face, the camera adjusts the exposure automatically. Use **Blink Detection** to detect closed eyes or **Smile Shot** to capture a smiling face.

Detecting faces

Your camera automatically detects up to 10 human faces in one scene.

1. In Shooting mode, press [**MENU**].
2. Select → **Face Detection** → **Normal**.



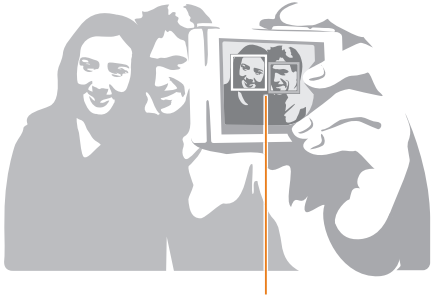
The face nearest the camera or nearest the center of the scene appears in a white focus frame and the rest of the faces appear in gray focus frames.

The closer you are to the subjects, the quicker your camera will detect faces.

Capturing a self portrait shot

Capture photos of yourself. The camera sets the focus distance to close-up, and then emits a beep when ready.

1. In Shooting mode, press [**MENU**].
2. Select → **Face Detection** → **Self-Portrait**.
3. Compose your shot with the lens facing you.
4. When you hear a quick beep, press [**Shutter**].



When faces are located in the center, the camera beeps rapidly.

If you turn **Volume** off in the sound settings, the camera will not emit a beep. (p. 95)

Capturing a smile shot

The camera automatically releases the shutter when it detects a smiling face.

1 In Shooting mode, press [**MENU**].

2 Select → **Face Detection** → **Smile Shot**.

3 Compose your shot.

- The camera automatically releases the shutter when it detects a smiling face.

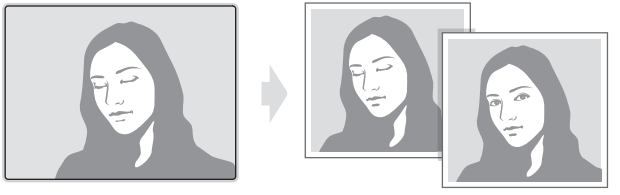
When your subject smiles broadly, your camera can detect the smile more easily.

Detecting eye blinking

If your camera detects closed eyes, it will automatically capture 2 photos in succession.

1 In Shooting mode, press [**MENU**].

2 Select → **Face Detection** → **Blink Detection**.



Tips for detecting faces

- When your camera detects a face, it tracks the detected face automatically.
- Face Detection may not be effective when:
  - the subject is far from the camera (The focus frame will appear orange for Smile Shot and Blink Detection.)
  - it is too bright or too dark
  - the subject is not facing the camera
  - the subject is wearing sunglasses or a mask
  - the subject's facial expression changes drastically
  - the subject is backlit or the lighting conditions are unstable
- Face Detection is not available when you set the Smart Filter effects, Image adjustment, or Tracking AF.
- Depending on the shooting options you selected, available Face Detection options may differ.
- Depending on the Face Detection options you selected, the timer function may not be available.
- When you set Face Detection options, the AF area is automatically set to Multi AF.
- Depending on the Face Detection options you selected, Burst options may not be available.

Adjusting brightness and color

Learn how to adjust the brightness and color for better image quality.

Adjusting the exposure manually (EV)

Depending on the intensity of the ambient light, your photos may be too bright or dark. In these cases, you can adjust the exposure to get a better photo.

▲ Darker (-)

▲ Neutral (0)

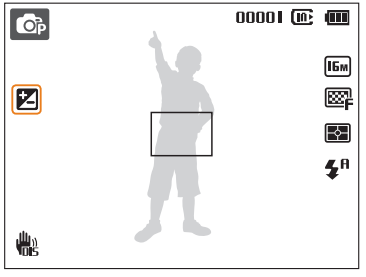
▲ Brighter (+)

1 In Shooting mode, press [**MENU**].

2 Select or → **EV**.

3 Select a value to adjust the exposure.

- The photo will be brighter as the exposure value increases.
- When you adjust the exposure value, the icon will appear as shown below.



4 Press [**OK**] to save your settings.

- Once you adjust the exposure, the setting will be stored automatically. You may need to change the exposure value later to avoid overexposure or underexposure.
- If you cannot decide on an appropriate exposure, select **AEB** (Auto Exposure Bracket). The camera will capture 3 consecutive photos, each with a different exposure: normal, underexposed, and overexposed. (p. 66)

Compensating for backlighting (ACB)

When the light source is behind your subject or there is high contrast between your subject and the background, your subject is likely to appear dark in the photo. In this case, set the Auto Contrast Balance (ACB) option.

▲ Without ACB

▲ With ACB

1 In Shooting mode, press [**MENU**].

2 Select → **ACB**.

3 Select an option.

Icon	Description
OFF	**Off**: ACB (Auto Contrast Balance) is deactivated.
ACB	**On**: ACB (Auto Contrast Balance) is activated.

- The ACB feature is always on in Smart Auto mode.
- The ACB feature is not available when you set Burst options or Smart Filter options.

Changing the metering option

The metering mode refers to the way in which a camera measures the quantity of light. The brightness and lighting of your photos will vary depending on the metering mode you select.

1 In Shooting mode, press [**MENU**].

2 Select or → **Metering**.

3 Select an option.

Icon	Description
	Multi: • Your camera divides the frame into several areas, and then measures the light intensity of each area. • Suitable for general photos.
	Spot: • Your camera measures only the light intensity at the very center of the frame. • If a subject is not in the center of the frame, your photo may be improperly exposed. • Suitable for a subject with backlighting.
	Center-weighted: • Your camera averages the meter reading of the entire frame with emphasis placed on the center. • Suitable for photos with subjects in the center of the frame.

Selecting a White Balance setting

The color of your photo depends on the type and quality of the light source. If you want the color of your photo to be realistic, select a White Balance setting that is appropriate for the lighting conditions, such as Auto WB, Daylight, Cloudy, or Tungsten.

Auto WB

Daylight

Cloudy

Tungsten

1 In Shooting mode, press [**MENU**].

2 Select or → **White Balance**.

3 Select an option.

Icon	Description
	Auto WB: Automatically set the White Balance based on the lighting conditions.
	Daylight: For outdoor photos on a sunny day.
	Cloudy: For outdoor photos on a cloudy day or in shadows.
	Fluorescent_H: For shooting under a daylight fluorescent or 3-way fluorescent light.
	Fluorescent_L: For shooting under white fluorescent light.
	Tungsten: For shooting indoor photos under incandescent bulbs or halogen lamps.
	Measure: Shutter: To use White Balance settings that you define. (p. 65)

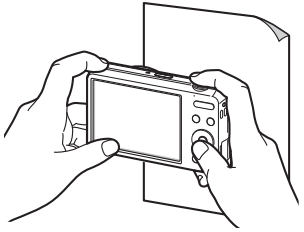
Defining your own White Balance

You can customize the White Balance by capturing a photo of a white surface, such as a piece of paper, under the lighting conditions in which you intend to capture a photo. The White Balance feature will help you to match the colors in your photo with the actual scene.

1 In Shooting mode, press [**MENU**].

2 Select or → **White Balance** → **Measure: Shutter**.

3 Aim the lens at a piece of white paper, and then press [**Shutter**].



Using burst modes

It can be difficult to capture photos of fast-moving subjects or capture natural facial expressions and gestures of your subjects in photos. Also, it can be difficult to adjust the exposure correctly and select a proper light source. In these cases, select one of the burst modes.

1 In Shooting mode, press [**MENU**].

2 Select → **Drive**.

3 Select an option.

Icon	Description
	Single: Capture a single photo. (**Single** is not a burst option.)
	Continuous: • While you are pressing [**Shutter**], the camera continuously captures photos. • The maximum number of photos depends on the capacity of your memory card.
	Motion Capture: While you are pressing [**Shutter**], the camera captures VGA photos (6 photos per second; maximum of 30 photos).
	AEB: • Capture 3 consecutive photos, each with a different exposure: normal, underexposed, and overexposed. • It may take longer to capture the photo. Use a tripod for best results.

- You can use the flash, timer, ACB, DIS, and Smart Filter options only when you select **Single**.
- When you select **Motion Capture**, your camera will set the resolution to VGA and set the ISO sensitivity to **Auto**.
- Depending on the Face Detection option you selected, some shooting options may not be available.
- It may take longer to save the photos depending on the memory card capacity and performance.

Applying effects/Adjusting images

Applying Smart Filter effects

Apply various filter effects to your photos and videos to create unique images.

Miniature

Vignetting

Fish-eye

Sketch

1 In Shooting mode, press [**MENU**].

2 Select or → **Smart Filter**.

3 Select an effect.

Available filters while capturing a photo

Icon	Description
	Normal: No effect
	Miniature: Apply a tilt-shift effect to make the subject appear in miniature. (The top and bottom of the photo will be blurred.)
	Vignetting: Apply the retro-looking colors, high contrast, and strong vignette effect of Lomo cameras.
	Half Tone Dot: Apply a halftone effect.
	Sketch: Apply a pen sketch effect.
	Fish-eye: Blacken the edges of the frame and distort objects to imitate the visual effect of a fisheye lens.
	Defog: Make image clearer.
	Classic: Apply a black and white effect.
	Retro: Apply a sepia tone effect.
	Negative: Apply a negative film effect.

- Depending on the option you select, the photo size may change to or smaller automatically.
- If you set Smart Filter effects, you cannot use ACB, Burst options, Image Adjustment options, Intelli zoom, or Tracking AF.

Available filters while recording a video

Icon	Description
	Normal: No effect
	Palette Effect 1: Create a vivid look with sharp contrast and strong color.
	Palette Effect 2: Make scenes clean and clear.
	Palette Effect 3: Apply a soft brown tone.
	Palette Effect 4: Create a cold and monotone effect.
	Miniature: Apply a tilt-shift effect to make the subject appear in miniature.
	Vignetting: Apply the retro-looking colors, high contrast, and strong vignette effect of Lomo cameras.
	Fish-eye: Distort close objects to imitate the visual effect of a fisheye lens.
	Defog: Make image clearer.
	Classic: Apply a black and white effect.
	Retro: Apply a sepia tone effect.
	Negative: Apply a negative film effect.

- If you select **Miniature**, playback speed will increase.
- If you select **Miniature**, you cannot record sound in the video.
- Depending on the option you select the recording resolution may change to VGA or smaller automatically.

Adjusting images

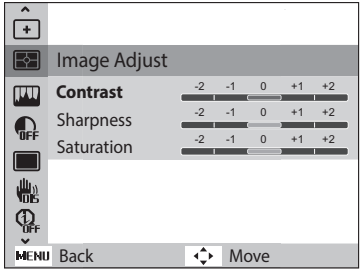
Adjust the sharpness, saturation, or contrast of your photos.

1 In Shooting mode, press [**MENU**].

2 Select → **Image Adjust**.

3 Select an option.

- Contrast
- Sharpness
- Saturation



4 Press [▷/⏲] to adjust each value.

Contrast	Description
–	Decrease the color and brightness.
+	Increase the color and brightness.

Sharpness	Description
–	Soften the edges on your photos (suitable for editing the photos on your computer).
+	Sharpen the edges to improve the clarity of your photos. (This may also increase the noise in your photos.)

Saturation	Description
–	Decrease the saturation.
+	Increase the saturation.

5 Press [**OK**] to save your settings.

- Select 0 if you do not want to apply any effects (suitable for printing).
- If you set adjustment functions, you cannot use Smart Filter options and Face Detection options.

Playback/Editing

Learn how to play back photos or videos, and edit photos. Also, learn how to connect your camera to your computer.

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Viewing photos or videos in Playback mode

Learn how to play back photos or videos and how to manage files.

Starting Playback mode

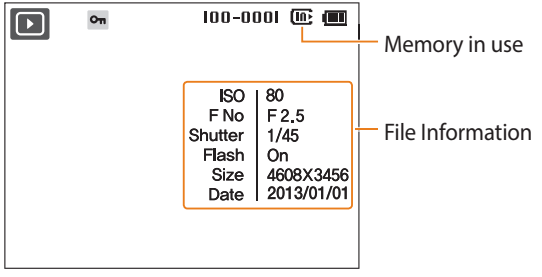
View photos or play videos stored in your camera.

1 Press [▶].
- The most recent file will be displayed.
- If the camera is off, it will turn on and display the most recent file.

2 Press [ϟ/⏲] to scroll through files.
- Press and hold [ϟ/⏲] to scroll through files quickly.

- If you want to view files stored in the internal memory, remove your memory card.
- You may not be able to edit or play back files that were captured with other cameras, due to unsupported sizes (image size, etc) or codecs. Use a computer or another device to edit or play back these files.
- Photos or videos captured in portrait orientation do not rotate automatically and are displayed in landscape orientation by the camera and other devices.

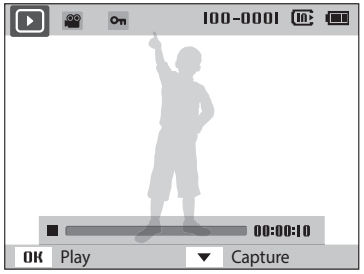
Photo file information



Icon	Description
🔑	Protected file
100-0001	Folder name–File name

To display file information on the screen, press [**DISP**].

Video file information



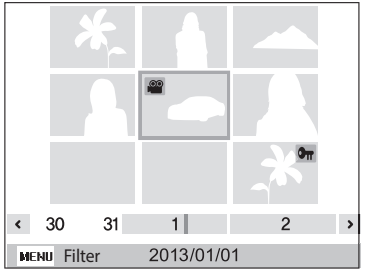
Icon	Description
	Video file
	Protected file
100-0001	Folder name–File name
00:00:10	Video length

To display file information on the screen, press [**DISP**].

Viewing files as thumbnails

Scan thumbnails of files.

In Playback mode, press [ ] to view thumbnails (3 at a time). Press [ ] once or twice more to display more thumbnails (9 or 20 at a time). Press [ ] to return to the previous view.



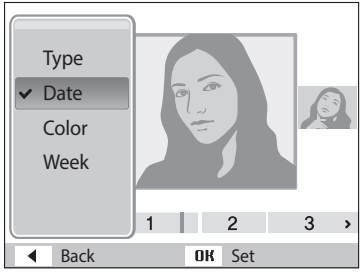
To	Description
Scroll through files	Press [**DISP**/ / /].
Delete files	Press [**Fn**], and then select **Yes**.

Viewing files by category

View files by category, such as date, face, or file type.

1 In Playback mode, press [◀] → [**MENU**].

2 Select a category.



Option	Description
Type	View files by the file type.
Date	View files by the date they were saved.
Color	View files by the dominant color of the image.
Week	View files by the day of the week they were saved.

3 Press [▼/⏲] to scroll through the files.
- Press and hold [▼/⏲] to scroll through files quickly.

4 Press [**OK**] to return to the normal view.

- **Etc** appears in **Color** view if the camera cannot extract a color.
- If you change the category, it may take some time for the camera to reorganize files depending on the number of files.

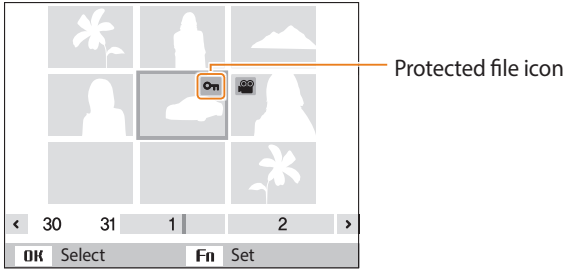
Protecting a file

Protect a file from accidental deletion.

1 In Playback mode, press [**MENU**].

2 Select → **Protect** → **Select**.
- To protect all files, select **All** → **Lock**.

3 Scroll to the file you want to protect, and then press [**OK**].
- Press [**OK**] again to cancel your selection.



4 Press [**Fn**].

You cannot delete or rotate a protected file.

Deleting files

Select files to delete in Playback mode.

Deleting a single file

You can select one file, and then delete it.

1 In Playback mode, select a file, and then press [**Fn**].

2 When the pop-up message appears, select **Yes**.

Deleting multiple files

You can select multiple files, and then delete them at once.

1 In Playback mode, press [**Fn**].

2 When the pop-up message appears, select **Multiple Delete**.
- You can also delete multiple files in Playback mode by pressing [**MENU**], and then selecting → **Delete** → **Select**.

3 Scroll to each file you want to delete, and then press [**OK**].
- Press [**OK**] again to cancel your selection.

4 Press [**Fn**].

5 When the pop-up message appears, select **Yes**.

Deleting all files

You can select all files, and then delete them at once.

1 In Playback mode, press [**MENU**].

2 Select → **Delete** → **All**.

3 When the pop-up message appears, select **Yes**.
- All unprotected files are deleted.

Copying files to a memory card

Copy files from the internal memory to a memory card.

1 In Playback mode, press [**MENU**].

2 Select → **Copy to Card**.

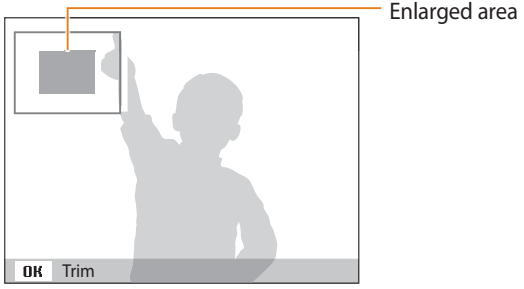
3 When the pop-up message appears, select **Yes**.

Viewing photos

Enlarge part of a photo or view photos as a slide show.

Enlarging a photo

In Playback mode, press [+] to enlarge a portion of the photo. Press [−] to zoom out.



To	Description
Move the enlarged area	Press [DISP/✿/ϟ/⏲].
Trim the enlarged photo	Press [OK], and then select **Yes**. (The trimmed photo will be saved as a new file. The original photo is retained in its original form.)

When you view photos that were captured by another camera, the zoom ratio may differ.

Viewing panoramic photos

View photos captured in Live Panorama mode.

1 In Playback mode, press [▼/⏲] to scroll to a desired panoramic photo.
- The entire panoramic photo appears on the screen.

2 Press [**OK**].
- The camera automatically scrolls through the photo from left to right for a horizontal panoramic photo and from top to bottom for a vertical panoramic photo. The camera then switches to Playback mode.
- While playing back a panoramic photo, press [**OK**] to pause or resume.
- After you have paused the playback of a panoramic photo, press [**DISP**/✿/▼/⏲] to move the photo horizontally or vertically, depending on the direction you moved when capturing the photo.

3 Press [**MENU**] to return to Playback mode.

You can play the panoramic photo by pressing [**OK**] only if the longest side of the photo is two or more times longer than the shortest side.

Playing a slide show

Apply effects and audio to a slide show of your photos. The slide show function does not work for videos.

1 In Playback mode, press [**MENU**].

2 Select .

3 Select a slide show effect option.
- Skip to step 4 to start a slide show with no effects.

* Default

Option	Description
Start	Set whether or not to repeat the slide show. (**Play**, **Repeat**)
Images	Set the photos you want to view as a slide show. • **All***: View all photos in a slide show. • **Date**: View photos captured on a specific date in a slide show. • **Select**: View selected photos in a slide show.
Interval	• Set the interval between photos. (**1 sec***, **3 sec**, **5 sec**, **10 sec**) • You must set the Effect option to **Off** to set the interval.
Music	Set background audio.

* Default

Option	Description
Effect	• Set a scene change effect between photos. (**Off***, **Calm**, **Shine**, **Relax**, **Lively**, **Sweet**) • Select **Off** to cancel effects. • When you use the Effect option, the interval between photos will be set to 1 second.

4 Select **Start** → **Play**.
- Select **Repeat** to loop the slide show.

5 View the slide show.
- Press [OK] to pause the slide show.
- Press [OK] again to resume the slide show.

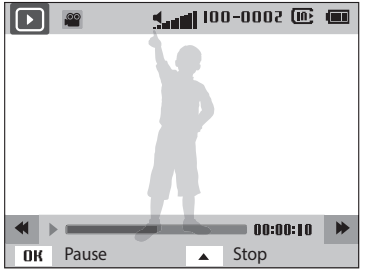
- Press [OK], and then press [ϟ/⏲] to stop the slide show and return to Playback mode.
- Press [◀] or [▶] to adjust the volume level.

Playing a video

In Playback mode, you can view a video, and then capture parts of the playing video.

1 In Playback mode, select a video, and then press [OK].

2 View the video.



To	Description
Scan backward	Press [ϟ].
Pause or resume playback	Press [OK].
Scan forward	Press [⏲].
Adjust the volume level	Press [◀] or [▶].

Capturing an image from video

1 While viewing a video, press [OK] at the point where you want to capture an image.

2 Press [ ].

- The resolution of the captured image will be the same as the original video.
- The captured image is saved as a new file.

Editing a photo

Learn how to edit photos.

- The camera will save edited photos as new files.
- When you edit photos, the camera will automatically convert them to a lower resolution. Photos that you rotate manually are not automatically converted to a lower resolution.
- Photos captured in some modes cannot be edited.

Resizing photos

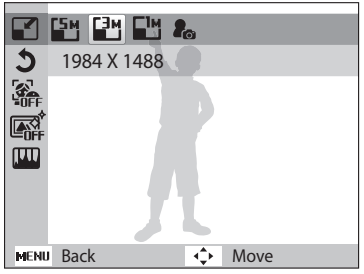
Change the size of a photo and save it as a new file. You can also select a photo to be displayed when the camera turns on.

1 In Playback mode, select a photo, and then press [**MENU**].

2 Select → **Resize**.

3 Select an option.

- Select **Start Image** to save the photo as a start image. (p. 95)



4 Press [**OK**] to save your settings.

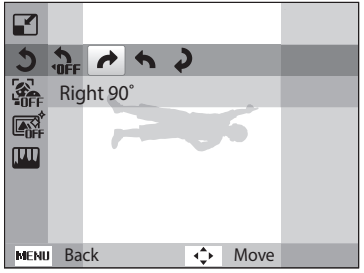
Available resize options differ depending on the original size of the photo.

Rotating a photo

1 In Playback mode, select a photo, and then press [**MENU**].

2 Select → **Rotate**.

3 Select an option.



4 Press [**OK**] to save your settings.

The camera will overwrite the original file.

Creating a close-up portrait

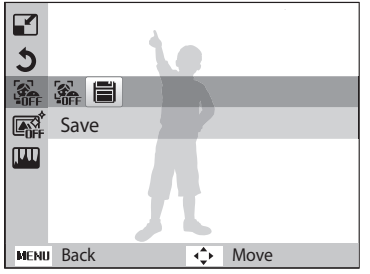
Extract the face of an individual subject from an existing photo.

1 In Playback mode, select a photo, and then press [**MENU**].

2 Select → **Intelligent Portrait**.

3 Select **Save** to crop the photo around the detected face.

- 2 cropped portraits are saved with consecutive file names.



The Intelligent Portrait feature will not function if:

- no face is detected
- more than 2 faces are detected
- the detected facial area is larger than a certain ratio

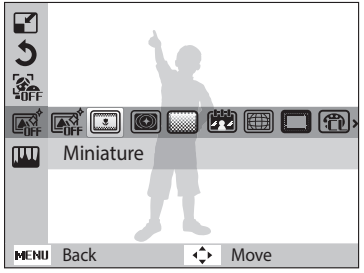
Applying Smart Filter effects

Apply special effects to your photos.

1 In Playback mode, select a photo, and then press [**MENU**].

2 Select → **Smart Filter**.

3 Select an effect.



Icon	Description
	Normal: No effect
	Miniature: Apply a tilt-shift effect to make the subject appear in miniature. (The top and bottom of the photo will be blurred.)
	Vignetting: Apply the retro-looking colors, high contrast, and strong vignette effect of Lomo cameras.
	Half Tone Dot: Apply a halftone effect.
	Sketch: Apply a pen sketch effect.
	Fish-eye: Distort close objects to imitate the visual effect of a fisheye lens.
	Defog: Make image clearer.
	Classic: Apply a black and white effect.
	Retro: Apply a sepia tone effect.
	Negative: Apply a negative film effect.

4 Press [**OK**] to save your settings.

Adjusting your photos

Learn how to correct red-eye, adjust the skin tone, and adjust the brightness, contrast, or saturation. If the center of a photo is dark, you can adjust it to be brighter. The camera will save an edited photo as a new file, but may convert it to a lower resolution.

Adjusting dark subjects (ACB)

1 In Playback mode, select a photo, and then press [**MENU**].
2 Select → **Image Adjust** → **ACB**.
3 Press [**OK**] to save your settings.

Removing red-eye

1 In Playback mode, select a photo, and then press [**MENU**].
2 Select → **Image Adjust** → **Red-eye Fix**.
3 Press [**OK**] to save your settings.

Retouching faces

1 In Playback mode, select a photo, and then press [**MENU**].
2 Select → **Image Adjust** → **Face Retouch**.
3 Press [**OK**].
4 Press [ϟ/⏲] to adjust the skin tone.
- As the number increases, the skin tone appears brighter and smoother.

5 Press [**OK**] to save your settings.

Adjusting brightness, contrast, or saturation

1 In Playback mode, select a photo, and then press [**MENU**].

2 Select → **Image Adjust**.

3 Select an adjusting option.

Icon	Description
	Brightness
	Contrast
	Saturation

4 Press [**OK**].

5 Press [/] to adjust the option.

6 Press [**OK**] to save your settings.

Adding noise to the photo

1 In Playback mode, select a photo, and then press [**MENU**].

2 Select → **Image Adjust** → **Add Noise**.

3 Press [**OK**] to save your settings.

Transferring files to the computer

Connect the camera to a computer to transfer files from the camera's memory card to the computer.

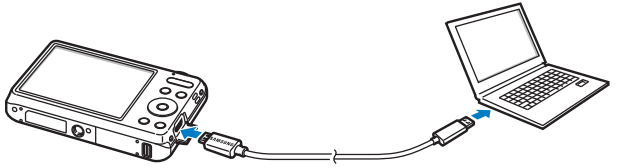
Transferring files to your Windows OS computer

Connect the camera to your computer as a removable disk.

> Your computer must be running Windows XP, Windows Vista, Windows 7, or Windows 8 for you to connect the camera as a removable disk.

1. In Shooting or Playback mode, press [**MENU**].
2. Select ⚙ → **i-Launcher** → **Off**.
3. Turn off the camera.
4. Connect the camera to your computer with the USB cable.

> You must plug the small end of the USB cable into your camera. If the cable is reversed, it may damage your files. The manufacturer is not responsible for any loss of data.



5. Turn on the camera.
   - The computer recognizes the camera automatically.
6. On your computer, select **My Computer** → **Removable Disk** → **DCIM** → **100PHOTO**.
7. Drag or save files to your computer.

Disconnecting the camera (for Windows XP)

With Windows Vista, Windows 7 and Windows 8, the methods for disconnecting the camera are similar.

1. If the status lamp on your camera is blinking, wait until it stops.
2. Click on the tool bar at the bottom right of your computer screen.

3. Click the pop-up message.
4. Click the message box that indicates the camera can be removed safely.
5. Remove the USB cable.

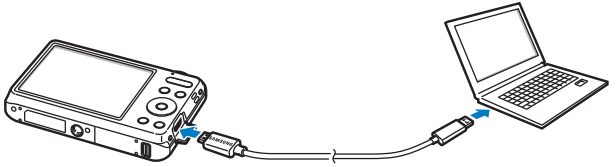
Transferring files to your Mac OS computer

When you connect the camera to your Mac OS computer, the computer will automatically recognize the device. You can transfer files directly from the camera to the computer without installing any programs.

Mac OS 10.5 or later is supported.

1. Turn off the camera.
2. Connect your camera to your Mac OS computer with the USB cable.

You must plug the small end of the USB cable into your camera. If the cable is reversed, it may damage your files. The manufacturer is not responsible for any loss of data.



3 Turn on the camera.
- The computer recognizes the camera automatically and displays a removable disk icon.

4 Open the removable disk.

5 Drag or save files to your computer.

Using programs on a computer

i-Launcher allows you to play back files with Multimedia Viewer and provides links so that you can download useful programs.

Installing i-Launcher

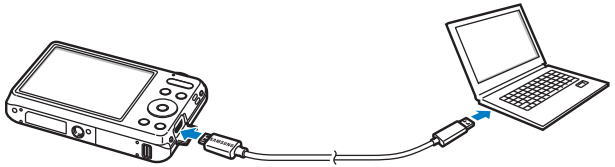
1 In Shooting or Playback mode, press [**MENU**].

2 Select ⚙ → **i-Launcher** → **On**.

3 Turn off the camera.

4 Connect the camera to your computer with the USB cable.

> You must plug the small end of the USB cable into your camera. If the cable is reversed, it may damage your files. The manufacturer is not responsible for any loss of data.



5 Turn on the camera.

6 When the pop-up window prompts you to install i-Launcher, select **Yes**.

- If a pop-up window prompting you to run iLinker.exe appears, run it first.
- When you connect the camera to a computer with i-Launcher installed, the program will launch automatically.

7 Follow the on-screen instructions to complete the installation.

- An i-Launcher shortcut will appear on the computer.

> - Before installing the program, ensure that the PC is connected to a network.
> - To install i-Launcher on your Mac OS computer, click **Devices** → **i-Launcher** → **Mac** → **iLinker**.

Available programs when using i-Launcher

Option	Description
Multimedia Viewer	You can view files with Multimedia Viewer.
Firmware Upgrade	You can update the firmware of your camera.

If you use a Mac OS computer, only Firmware Upgrade is available.

Using i-Launcher

i-Launcher allows you to play back files with Multimedia Viewer.

- The requirements are recommendation only. i-Launcher may not work properly even when the computer meets the requirements, depending on the condition of your computer.
- If your computer does not meet the requirements, videos may not play correctly.

The manufacturer is not responsible for any damage that results from using unqualified computers such as a computer you assembled yourself.

Windows OS Requirements

Item	Requirements
CPU	Intel® Core™ 2 Duo 1.66 GHz or higher/ AMD Athlon X2 Dual-Core 2.2 GHz or higher
RAM	Minimum 512 MB RAM (1 GB or more recommended)
OS*	Windows XP SP2, Windows Vista, Windows 7, or Windows 8
Hard disk capacity	250 MB or more (1 GB and above recommended)
Others	• 1024 X 768 pixels, 16-bit color display compatible monitor (1280 X 1024 pixels, 32-bit color display recommended) • USB 2.0 port • nVIDIA Geforce 7600GT or higher/ATI X1600 series or higher • Microsoft DirectX 9.0c or higher

* A 32-bit version of i-Launcher will be installed—even on 64-bit editions of Windows XP, Windows Vista, Windows 7, and Windows 8.

Mac OS requirements

Item	Requirements
OS	Mac OS 10.5 or higher (except PowerPC)
RAM	Minimum 256 MB RAM (512 MB or more recommended)
Hard disk capacity	Minimum 110 MB
Others	USB 2.0 port

Opening i-Launcher

On your computer, select **Start** → **All Programs** → **Samsung** → **i-Launcher** → **Samsung i-Launcher**. On your Mac, click **Applications** → **Samsung** → **i-Launcher**.

Using Multimedia Viewer

Multimedia Viewer allows you to play back files. From the Samsung i-Launcher screen, click **Multimedia Viewer**.

- Multimedia Viewer supports the following formats:
  - Videos: MP4 (Video: H.264, Audio: AAC), WMV (WMV 7/8/9), AVI (MJPEG)
  - Photos: JPG, GIF, BMP, PNG, TIFF, MPO
- Files that have been recorded with other manufacturers' devices may not play back smoothly.

Viewing photos

No.	Description
1	File name
2	Enlarged area
3	Histogram
4	Open the selected file.
5	Histogram button
6	Rotate to the left/Rotate to the right.
7	Move to the previous file/Move to the next file.
8	Fit the photo to the screen.
9	View the photo in its original size.
10	Zoom in/Zoom out
11	Switches between 2D and 3D mode.

Viewing videos

No.	Description
1	File name
2	Adjust the volume.
3	Open the selected file.
4	Move to the next file.
5	Stop
6	Pause
7	Move to the previous file.
8	Progress bar

Updating the firmware

From the Samsung i-Launcher screen, click **Firmware Upgrade**.

Settings

Refer to options to configure your camera's settings.

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- Accessing the settings menu 94
- Sound 95
- Display 95
- Settings 96

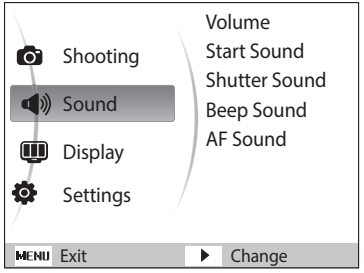
Settings menu

Learn to configure your camera's settings.

Accessing the settings menu

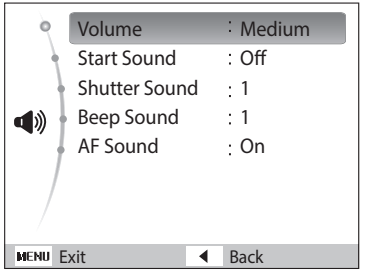
1 In Shooting or Playback mode, press [**MENU**].

2 Select a menu.

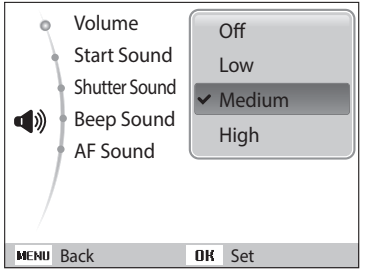


Option	Description
	Sound: Set various camera sounds and the volume. (p. 95)
	Display: Customize the display settings. (p. 95)
	Settings: Customize the settings for the camera system. (p. 96)

3 Select an item.



4 Select an option.



5 Press [**MENU**] to return to the previous screen.

Sound

* Default

Item	Description
Volume	Set the volume of all sounds. (**Off**, **Low**, **Medium***, **High**)
Start Sound	Set the sound the camera emits when you turn on your camera. (**Off***, **1**, **2**, **3**)
Shutter Sound	Set the sound the camera emits when you press the shutter button. (**Off**, **1***, **2**, **3**)
Beep Sound	Set the sound the camera emits when you press the buttons or switch modes. (**Off**, **1***, **2**, **3**)
AF Sound	Set the sound the camera emits when you half-press the shutter button on or off. (**Off**, **On***)

Display

* Default

Item	Description
Function Description	Display a brief description of an option or a menu. (**Off**, **On***)
Start Image	Set a start image to display when the camera turns on. • **Off***: Display no start image. • **Logo**: Display a default image stored in the internal memory. • **User Image**: Select User Image from the photos you captured in the memory. • The camera will save only one User Image in the internal memory at a time. • If you select a new photo as a User Image or reset your camera, the camera will delete the current image.
Wallpapers	Set a wallpaper image for the Mode and Menu screens.
Date/Time Display	Set whether or not to display the date and time on the camera's display. (**Off***, **On**)

* Default

Item	Description
Display Brightness	Adjust the brightness of the screen. (**Auto***, **Dark**, **Normal**, **Bright**) **Normal** is fixed in Playback mode even if you have selected **Auto**.
Quick View	Set whether or not to review a captured image before returning to the Shooting mode. (**Off**, **On***) This feature does not work in some modes.
Auto Display Off	If you perform no operations for 30 seconds, the camera screen turns off automatically and the status lamp blinks. (**Off***, **On**) • When the screen turns off automatically, press any button other than [⏻] to resume using the camera. • Even if you do not set this function, the screen will dim 60 seconds after the last operation to save power.

Settings

* Default

Item	Description
Format	Format the memory. Formatting will delete all files, including protected files. (**Yes**, **No**) Errors can occur if you use a memory card formatted by another brand of camera, a memory card reader, or a computer. Please format memory cards in the camera before using them to capture photos.
Reset	Reset menus and shooting options. Date, times, and language settings will not be reset. (**Yes**, **No**)
Language	Set a language for the display text.
Time Zone	Set the time zone for your location. When you travel to another country, select the appropriate time zone.
Date/Time Set	Set the date and time.
Date Type	Set a date format. (**YYYY/MM/DD**, **MM/DD/YYYY**, **DD/MM/YYYY**) The default date type may differ depending on the language selected.

* Default

Item	Description
Time Type	Set a time format. (**12 Hr**, **24 Hr**) The default time type may differ depending on the language selected.
File No.	Specify how to name files. • **Reset**: Set the file number to start from 0001 when you insert a new memory card, format a memory card, or delete all files. • **Series***: Set the file number to resume from the previous file number when you insert a new memory card, format a memory card, or delete all files. • The default name of the first folder is 100PHOTO and the default name of the first file is SAM_0001. • The file number increases by one, from SAM_0001 to SAM_9999, each time you capture a photo or record a video. • The folder number increases by one, from 100PHOTO to 999PHOTO, each time a folder is full. • The maximum number of files that can be stored in one folder is 9,999. • The camera defines file names according to the Design rule for Camera File system (DCF) standard. If you intentionally change file names, the camera may not play back the files.

* Default

Item	Description
Imprint	Set whether or not to display the date and time on captured photos. (**Off***, **Date**, **Date & Time**) • The date and time will be displayed on the bottom right corner of the photo. • Some printer models may not print the date and time properly. • The photo will not display the date and time if: - you select **Intelligent Portrait**, **Funny Face**, or **Text** in SCENE mode - you select DUAL mode - you select mode
Auto Power Off	Set the camera to automatically turn off when you perform no operations for a specified period. (**Off**, **1 min**, **3 min***, **5 min**, **10 min**) • Your settings will not change when you replace the battery. • The camera will not automatically turn off when the camera is connected to a computer, and when you are playing a slide show or videos.
i-Launcher	Set i-Launcher to launch automatically when you connect your camera to your computer. (**Off**, **On***)
Open source licenses	View open source licenses.

Appendixes

Get information about error messages, specifications, and maintenance.

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Camera maintenance 100

- Cleaning your camera 100
- Using or storing the camera 101
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- About the battery 105

Before contacting a service center 109

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Error messages

When the following error messages appear, try these remedies.

Error message	Suggested remedies
Card Error	• Turn off your camera, and then turn it on again. • Remove your memory card, and then insert it again. • Format your memory card.
Card not supported.	The inserted memory card is not supported by your camera. Insert a microSD or microSDHC memory card.
DCF Full Error	File names do not match the DCF standard. Transfer the files from the memory card to your computer and format the card. Then, open the Settings menu and select **File No.** → **Reset**. (p. 97)

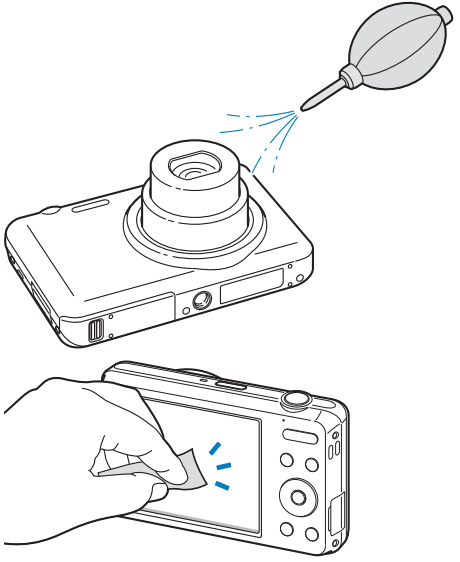
Error message	Suggested remedies
File Error	Delete the damaged file or contact a service center.
File system not supported.	Your camera does not support the FAT file structure of the inserted memory card. Format the memory card on the camera.
Low Battery	Insert a charged battery or recharge the battery.
Memory Full	Delete unnecessary files or insert a new memory card.
No Image File	Capture photos or insert a memory card that contains some photos.

Camera maintenance

Cleaning your camera

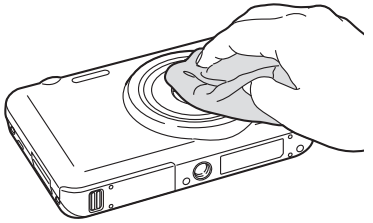
Camera lens and display

Use a blower brush to remove dust and wipe the lens gently with a soft cloth. If any dust remains, apply lens cleaning liquid to a piece of lens cleaning paper and wipe gently.



Camera body

Wipe gently with a soft, dry cloth.



- Never use benzene, thinners, or alcohol to clean the device. These solutions can damage the camera or cause it to malfunction.
- Do not press on the lens cover or use a blower brush on the lens cover.

Using or storing the camera

Inappropriate places to use or store the camera

- Avoid exposing the camera to very cold or very hot temperatures.
- Avoid using your camera in areas with extremely high humidity, or where the humidity changes drastically.
- Avoid exposing the camera to direct sunlight and storing it in hot, poorly-ventilated areas, such as in a car during summer time.
- Protect your camera and the display from impact, rough handling, and excessive vibration to avoid serious damage.
- Avoid using or storing your camera in dusty, dirty, humid, or poorly-ventilated areas to prevent damage to moving parts and internal components.
- Do not use your camera near fuels, combustibles, or flammable chemicals. Do not store or carry flammable liquids, gases, or explosive materials in the same compartment as the camera or its accessories.
- Do not store the camera where there are mothballs.

Using on beaches or shores

- Protect your camera from sand and dirt when you use it on beaches or in other similar areas.
- Your camera is not waterproof. Do not handle the battery, adapter, or memory card with wet hands. Operating the camera with wet hands may cause damage to your camera.

Storing for extended period of time

- When you store the camera for an extended period, place it in a sealed container with an absorbent material, such as silica gel.
- Over time, unused batteries will discharge and must be recharged before use.
- You must reset the date and time when you turn the camera on after the camera and battery have been separated for a prolonged period.

Using the camera with caution in humid environments

When you transfer the camera from a cold environment to a warm one, condensation can form on the lens or internal components of the camera. In this situation, turn off the camera and wait for at least 1 hour. If condensation forms on the memory card, remove the memory card from the camera and wait until all moisture has evaporated before reinserting it.

Other cautions

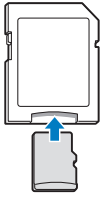
- Do not swing your camera by the strap. This may cause injury to yourself or others or damage to your camera.
- Do not paint your camera, as paint can clog moving parts and prevent proper operation.
- Turn off the camera when not using it.
- Your camera contains delicate parts. Avoid impacts to the camera.

- Protect the display from external force by keeping it in the case when not in use. Protect the camera from scratches by keeping it away from sand, sharp implements, or loose change.
- Do not use the camera if the screen is cracked or broken. Broken glass or acrylic could cause injury to your hands and face. Take the camera to a Samsung service center to have it repaired.
- Never place cameras, batteries, chargers, or accessories near, on, or in heating devices, such as microwave ovens, stoves, or radiators. These devices may be deformed and can overheat and cause a fire or explosion.
- Do not expose the lens to direct sunlight, as this may discolor the image sensor or cause it to malfunction.
- Protect the lens from fingerprints and scratches. Clean the lens with a soft, clean, debris-free lens cloth.
- The camera may turn off if struck or dropped. This is to protect the memory card. Turn on the camera to use it again.
- While you use the camera, it may heat up. This is normal and should not affect your camera's lifespan or performance.
- When you use the camera in low temperatures, it may take some time to turn on, the color of the display may be changed temporarily, or after-images may appear. These conditions are not malfunctions and they will correct themselves when the camera is returned to milder temperatures.
- Paint or metal on the outside of the camera may cause allergies, itchy skin, eczema, or swelling for people with sensitive skin. If you experience any of these symptoms, stop using the camera immediately and consult a doctor.
- Do not insert foreign objects into any of your camera's compartments, slots, or access points. Damage due to improper use may not be covered by your warranty.
- Do not allow unqualified personnel to service the camera or attempt to service the camera yourself. Any damage that results from unqualified service is not covered by your warranty.

About memory cards

Supported memory cards

Your camera supports microSD (Secure Digital) or microSDHC (Secure Digital High Capacity) memory cards.



To read data with a PC or memory card reader, insert the memory card into a memory card adapter.

Memory card capacity

The memory capacity may differ depending on the scenes you shoot or shooting conditions. These capacities are based on a 2 GB microSD card:

Photos

Size	Super Fine	Fine	Normal
16M	213	417	616
14M	244	476	693
12M	283	559	824
10M	337	656	953
5M	649	1,220	1,743
3M	1,052	1,906	2,653
2M	1,743	2,905	3,813
1M	3,211	5,085	6,102

Videos

Size	30 fps	15 fps
HD 1280 X 720 HQ	Approx. 08' 07"	Approx. 15' 03"
VGA 640 X 480	Approx. 18' 42"	Approx. 36' 06"
QVGA 320 X 240	Approx. 66' 39"	Approx. 120' 55"

The figures above are measured without using the zoom function. Available recording time may vary if you use the zoom. Several videos were recorded in succession to determine the total recording time.

Cautions when using memory cards

- Avoid exposing memory cards to very cold or very hot temperatures (below 0 °C/32 °F or above 40 °C/104 °F). Extreme temperatures can cause memory cards to malfunction.
- Insert a memory card in the correct direction. Inserting a memory card in the wrong direction may damage your camera and memory card.
- Do not use memory cards that have been formatted by other cameras or by a computer. Reformat the memory card with your camera.
- Turn off the camera before you insert or remove the memory card.
- Do not remove the memory card or turn off your camera while the lamp is blinking, as this may damage your data.
- When the lifespan of a memory card has expired, you cannot store any more photos on the card. Use a new memory card.
- Do not bend, drop, or subject memory cards to heavy impact or pressure.
- Avoid using or storing memory cards near strong magnetic fields.
- Avoid using or keeping memory cards in areas with high temperatures, high humidity, or corrosive substances.
- Prevent memory cards from making contact with liquids, dirt, or foreign substances. If dirty, wipe the memory card clean with a soft cloth before you insert the memory card into your camera.
- Do not allow liquids, dirt, or foreign substances to come in contact with memory cards or the memory card slot. Doing so may cause memory cards or the camera to malfunction.
- When you carry a memory card, use a case to protect the card from electrostatic discharges.
- Transfer important data to other media, such as a hard disk, CD, or DVD.
- When you use the camera for an extended period, the memory card may become warm. This is normal and does not indicate a malfunction.

The manufacturer is not responsible for any loss of data.

About the battery

Use only Samsung-approved batteries.

Battery specifications

Specification	Description
Model	BP70A
Type	Lithium-ion battery
Cell capacity	700 mAh
Voltage	3.7 V
Charging time* (when the camera is switched off)	Approximately 160 min

* Charging the battery by connecting it to a computer may take longer.

Battery life

Average shooting time/ Number of photos		Test conditions (when the battery is fully charged)
Photos	Approximately 140 min/ Approximately 280 photos	The battery life was measured under the following conditions: in P mode, in darkness, 16M resolution, Fine quality, DIS on. 1. Set the flash option to **Fill in**, take a single shot, and zoom in or out. 2. Set the flash option to **Off**, take a single shot, and zoom in or out. 3. Perform steps 1 and 2, waiting 30 seconds between each step. Repeat the process for 5 minutes, and then turn off the camera for 1 minute. 4. Repeat steps 1 to 3.
Videos	Approximately 110 min	Record videos at **HD** resolution and 30 fps.

- The figures above are measured by Samsung's standards. Your results may differ, depending on your actual usage.
- Several videos were recorded in succession to determine the total recording time.

Low battery message

When the battery has fully discharged, the battery icon will turn red and the "**Low Battery**" message will appear.

Notes about using the battery

- Avoid exposing batteries to very cold or very hot temperatures (below 0 °C/32 °F or above 40 °C/104 °F). Extreme temperatures can reduce the charging capacity of your batteries.
- When you use the camera for an extended period, the area around the battery chamber may become warm. This does not affect the normal use of the camera.
- Do not pull the power supply cord to disconnect the plug from the power outlet, as this may cause a fire or electric shock.
- In temperatures below 0 °C/32 °F, battery capacity and battery life may decrease.
- Battery capacity may decrease in low temperatures, but will return to normal in milder temperatures.
- Remove the batteries from your camera when storing it for an extended period. Installed batteries may leak or corrode over time and cause serious damage to your camera. Storing the camera for extended periods with the battery installed causes the battery to discharge. You may not be able to recharge a fully discharged battery.
- When you do not use the camera for an extended period (3 months or more), check the battery and recharge it regularly. If you let the battery discharge continually, its capacity and life may decrease, which can lead to a malfunction, fire, or explosion.

Cautions about using the battery

Protect batteries, chargers, and memory cards from damage.
Prevent batteries from making contact with metal objects, as this can create a connection between the + and – terminals of your battery and lead to temporary or permanent battery damage and may cause a fire or electric shock.

Notes about charging the battery

- If the status lamp is off, make sure that the battery is inserted correctly.
- If the camera is on while charging, the battery may not fully charge. Turn off the camera before charging the battery.
- Do not use your camera when you are charging the battery. This may cause a fire or electric shock.
- Do not pull the power supply cord to disconnect the plug from the power outlet, as this may cause a fire or electric shock.
- Let the battery charge for at least 10 minutes before turning on the camera.
- If you connect the camera to an external power source when the battery is depleted, using high energy-consuming functions will cause the camera to turn off. To use the camera normally, recharge the battery.

- If you reconnect the power cable when the battery is fully charged, the status lamp turns on for approximately 30 minutes.
- Using the flash or recording videos depletes the battery quickly. Charge the battery until the red status lamp turns off.
- If the status lamp blinks in red, reconnect the cable, or remove the battery and insert it again.
- If you charge the battery when the cable is overheated or the temperature is too high, the status lamp may blink in red. Charging will start when the battery cools down.
- Overcharging batteries may shorten battery life. After charging is finished, disconnect the cable from your camera.
- Do not bend or place heavy objects on the AC cable. Doing so may damage the cable.

Notes about charging with a computer connected

- Use only the provided USB cable.
- The battery may not charge when:
  - you use a USB hub
  - other USB devices are connected to your computer
  - you connect the cable to the port on the front side of your computer
  - the USB port of your computer does not support the power output standard (5 V, 500 mA)

Handle and dispose of batteries and chargers with care

- Never dispose of batteries in a fire. Follow all local regulations when you dispose of used batteries.
- Never place batteries or cameras on or in heating devices, such as microwave ovens, stoves, or radiators. Batteries may explode when they are overheated.

Personal injury or death can occur if the battery is handled carelessly or improperly. For your safety, follow these instructions for proper battery handling:

- The battery can ignite or explode if not handled properly. If you notice any deformities, cracks, or other abnormalities in the battery, immediately discontinue use of the battery and contact a service center.
- Use only authentic, manufacturer-recommend battery chargers and adapters and charge the battery only by the methods described in this user manual.
- Do not place the battery near heating devices or expose it to excessively warm environments, such as the inside of an enclosed car in the summertime.
- Do not place the battery in a microwave oven.
- Avoid storing or using the battery in hot, humid places, such as spas or shower enclosures.
- Do not rest the camera on flammable surfaces, such as bedding, carpets, or electric blankets for a prolonged period.
- When the camera is switched on, do not leave it in any confined space for a prolonged period.
- Do not allow battery terminals to come in contact with metallic objects, such as necklaces, coins, keys, or watches.
- Use only authentic, manufacturer-recommended, Lithium-ion replacement batteries.
- Do not disassemble the battery or puncture it with any sharp object.
- Avoid exposing the battery to high pressure or crushing forces.
- Avoid exposing the battery to major impacts, such as dropping it from high places.
- Do not expose the battery to temperatures of 60 °C (140 °F) or above.
- Do not allow the battery to come in contact with moisture or liquids.
- Do not expose the battery to sources of excessive heat such as sunshine, fire or the like.

Disposal guidelines

- Dispose of the battery with care.
- Do not dispose of the battery in a fire.
- Disposal regulations may differ by country or region. Dispose of the battery in accordance with all local and federal regulations.

Guidelines for charging the battery

Charge the battery only by the methods described in this user manual. The battery can ignite or explode if not charged properly.

Before contacting a service center

If you are having trouble with your camera, try these troubleshooting procedures before you contact a service center. If you have attempted the suggested remedy and are still having problems with your device, contact your local dealer or service center.

When you leave your camera at a service center, be sure to also leave the other components that may have contributed to the malfunction, such as the memory card and battery.

Situation	Suggested remedies
Cannot turn on the camera	• Ensure that the battery is inserted. • Ensure that the battery is inserted correctly. (p. 17) • Charge the battery.
The power turns off suddenly	• Charge the battery. • Your camera may be in Auto Power Off mode. (p. 97) • The camera may turn off to prevent the memory card from being damaged due to an impact. Turn on your camera again.
The camera is losing battery power quickly	• The battery may lose power more quickly in low temperatures (below 0 °C/32 °F). Keep the battery warm by putting it into your pocket. • Using the flash or recording videos depletes the battery quickly. Recharge if needed. • Batteries are consumable parts that must be replaced over time. Get a new battery if the battery life is diminishing quickly.

Situation	Suggested remedies
Cannot capture photos	• There is no space on the memory card. Delete unnecessary files or insert a new card. • Format the memory card. • The memory card is defective. Get a new memory card. • Make sure that the camera is switched on. • Charge the battery. • Make sure that the battery is inserted correctly.
The camera freezes	Remove the battery and insert it again.
The camera heats up	While you use the camera, it may heat up. This is normal and should not affect your camera's lifespan or performance.
The flash does not work	• The flash option may be set to **Off**. (p. 52) • You cannot use the flash in some modes.

Situation	Suggested remedies
The flash fires unexpectedly	The flash may fire due to static electricity. The camera is not malfunctioning.
The date and time are incorrect	Set the date and time in the display settings. (p. 96)
The display or buttons do not work	Remove the battery, and then insert it again.
The camera display responds poorly	If you use your camera at very low temperatures, it may cause the camera screen to malfunction or discolor. For better performance of your camera screen, use your camera in moderate temperatures.
The memory card has an error	• Turn off your camera, and then turn it on again. • Remove your memory card, and then insert it again. • Format your memory card. See "Cautions when using memory cards" for more detail. (p. 104)
Cannot play back files	If you change the name of a file, your camera may not play the file (the name of the file should meet the DCF standard). If you encounter this situation, play back the files on your computer.

Situation	Suggested remedies
The photo is blurry	• Make sure that the focus option you set is suitable for close-up shots. (p. 55) • Make sure that the lens is clean. If not, clean the lens. (p. 100) • Make sure that the subject is within range of the flash. (p. 113)
The colors in the photo do not match the actual scene	An incorrect White Balance can create unrealistic color. Select the proper White Balance option to suit the light source. (p. 64)
The photo is too bright	Your photo is overexposed. • Turn off the flash. (p. 52) • Adjust the ISO sensitivity. (p. 54) • Adjust the exposure value. (p. 61)
The photo is too dark	Your photo is underexposed. • Turn on the flash. (p. 52) • Adjust the ISO sensitivity. (p. 54) • Adjust the exposure value. (p. 61)

Situation	Suggested remedies
Your computer does not recognize your camera	• Make sure that the USB cable is connected correctly. • Make sure that your camera is switched on. • Make sure that you are using a supported operating system.
Your computer disconnects the camera while transferring files	The file transmission may be interrupted by static electricity. Disconnect the USB cable and connect it again.
Your computer cannot play videos	Videos may not play on some video player programs. To play video files captured with your camera, use the Multimedia Viewer program that you can install with the i-Launcher program on your computer.
i-Launcher is not functioning properly	• End i-Launcher and restart the program. • Make sure that **i-Launcher** is set to **On** in the settings menu. (p. 97) • Depending on your computer's specifications and environment, the program may not launch automatically. In this case, click **Start** → **All Programs** → **Samsung** → **i-Launcher** → **Samsung i-Launcher** on your Windows computer. (For Windows 8, open Start screen, and then select **All apps** → **Samsung i-Launcher**.) Or, click **Applications** → **Samsung** → **i-Launcher** on your Mac OS computer.

Camera specifications

Image sensor	
Type	1/2.3" (Approximately 7.77 mm) CCD
Effective pixels	Approximately 16.1 mega-pixels
Total pixels	Approximately 16.6 mega-pixels
Lens	
Focal length	Samsung Lens f = 4.5–22.5 mm (35 mm film equivalent: 25–125 mm)
F-stop range	F2.5 (W)–F6.3 (T)
Zoom	Still image mode: 1.0–5.0X (Optical zoom X Digital zoom: 25.0X, Optical zoom X Intelli zoom: 10.0X)
Display	
Type	TFT LCD
Feature	2.7" (67.5 mm) QVGA (230K)
Focusing	
Type	TTL auto focus (Multi AF, Center AF, Face Detection AF, Tracking AF)

Range		Wide (W)	Tele (T)
	Normal (AF)	80 cm–infinity	250 cm–infinity
	Macro	5–80 cm	100–250 cm
	Auto Macro	5 cm–infinity	100 cm–infinity

Shutter speed

- Smart Auto: 8–1/2,000 sec.
- Program: 1–1/2,000 sec.
- Night: 8–1/2,000 sec.

Exposure	
Control	Program AE
Metering	Multi, Spot, Center-weighted
Compensation	±2EV (1/3 EV Step)
ISO equivalent	Auto, ISO 80, ISO 100, ISO 200, ISO 400, ISO 800, ISO 1600, ISO 3200

Flash	
Mode	Off, Red-eye Fix, Slow Sync, Fill in, Red-eye, Auto
Range	• Wide: 0.3–4.2 m (ISO Auto) • Tele: 0.5–1.6 m (ISO Auto)
Recharging time	Approximately 4 sec.
Shake reduction	
Digital Image Stabilization (DIS)	
Effect	
Photo Shooting mode	• Smart Filter: Normal, Miniature, Vignetting, Half Tone Dot, Sketch, Fish-eye, Defog, Classic, Retro, Negative • Image Adjust: Contrast, Sharpness, Saturation
Video Shooting mode	Smart Filter: Normal, Palette Effect 1, Palette Effect 2, Palette Effect 3, Palette Effect 4, Miniature, Vignetting, Defog, Fish-eye, Classic, Retro, Negative
White Balance	
Auto WB, Daylight, Cloudy, Fluorescent_H, Fluorescent_L, Tungsten, Measure: Shutter	

Date Imprinting	
Off, Date, Date & Time	
Shooting	
Photos	• Modes: Smart Auto (Portrait, Night Portrait, Backlight Portrait, Night, Backlight, Landscape, White, Natural Green, Blue Sky, Sunset, Macro, Macro text, Macro Color, Tripod, Action), Program, Live Panorama, Picture in Picture, Scene (Magic Frame, Beauty Shot, Intelligent Portrait, Funny Face, Night, Landscape, Text, Sunset, Dawn, Backlight, Beach & Snow) • Burst: Single, Continuous, Motion Capture, AEB • Timer: Off, 10 Sec, 2 Sec, Double
Videos	• Modes: Smart Scene Detection (Landscape, Blue Sky, Natural Green, Sunset), Movie • Format: MJPEG (Max. recording time: 20 min) • Size: 1280 X 720 HQ (Per one file: Max. 4 GB), 640 X 480, 320 X 240 • Frame Rate: 15 fps, 30 fps • Sound Alive: Sound Alive On, Sound Alive Off, Mute • Video editing (embedded): Pause during recording, Still image capture

Playback	
Photos	• Type: Single image, Thumbnails, Multi Slide Show with Music and Effect, Movie clip • Edit: Resize, Rotate, Intelligent Portrait, Smart Filter, Image Adjust, Trim • Effect: Image Adjust (ACB, Red-eye Fix, Face Retouch, Brightness, Contrast, Saturation, Add Noise), Smart Filter (Normal, Miniature, Vignetting, Half Tone Dot, Sketch, Fish-eye, Defog, Classic, Retro, Negative)
Videos	Edit: Still image capture
Storage	
Media	• Internal memory: Approximately 70 MB • External memory (Optional): microSD card (2 GB guaranteed), microSDHC card (up to 8 GB guaranteed) Internal memory capacity may not match these specifications.
File format	• Still Image: JPEG (DCF), EXIF 2.21 • Movie Clip: AVI (MJPEG)

Image size

Icon	Size
16M	4608 X 3456
14M	4608 X 3072
12M	4608 X 2592
10M	3648 X 2736
5M	2592 X 1944
3M	1984 X 1488
2M	1920 X 1080
1M	1024 X 768

Interface	
Digital output connector	USB 2.0
Audio input/output	Internal speaker (Mono), Microphone (Mono)
DC power input connector	5.0 V
Power source	
Rechargeable battery	Lithium-ion battery (BP70A, 700 mAh)
Connector type	Micro USB (5 pin)
The power source may differ depending on your region.	

Dimensions (W X H X D)
3.61 X 2.17 X 0.69 in. (91.6 X 55.2 X 17.5 mm) (without protrusions)
Weight
90 g (without battery and memory card)
Operating Temperature
0–40 °C (32-104 °F)
Operating Humidity
5–85 %
Software
i-Launcher

Specifications may change without notice to improve performance.

Glossary

ACB (Auto Contrast Balance)
This feature automatically improves the contrast of your images when the subject is backlit or when there is a high contrast between your subject and the background.

AEB (Auto Exposure Bracket)
This feature automatically captures several images at different exposures to help you capture a properly-exposed image.

AF (Auto Focus)
A system that automatically focuses the camera lens on the subject. Your camera uses the contrast to focus automatically.

Aperture
The aperture controls the amount of light that reaches the camera's sensor.

Camera shake (Blur)
If the camera is moved while the shutter is open, the entire image may appear blurred. This occurs more often when the shutter speed is slow. Prevent camera shake by raising the sensitivity, using the flash, or using a faster shutter speed. Alternately, use a tripod, the OIS or DIS function to stabilize the camera.

Composition
Composition in photography means arranging objects in a photo. Usually, abiding by the rule of thirds leads to a good composition.

DIS (Digital Image Stabilization)
This feature compensates in real-time for shaking and vibrating while shooting. There can be a certain amount of image degradation compare to Optical Image Stabilization.

DCF (Design rule for Camera File system)
A specification to define a file format and file system for digital cameras created by the Japan Electronics and Information Technology Industries Association (JEITA).

Depth of field
The distance between the nearest and farthest points that can be acceptably focused in a photograph. Depth of field varies with lens aperture, focal length, and distance from the camera to the subject. Selecting a smaller aperture, for example, will increase the depth of field and blur the background of a composition.

Digital zoom
A feature that artificially increases the amount of zoom available with a zoom lens (Optical zoom). When using the Digital zoom, the image quality will deteriorate as the magnification increases.

EV Compensation
All the combinations of the camera's shutter speed and lens aperture that result in the same exposure.

EV (Exposure Value)
This feature allows you to quickly adjust the exposure value measured by the camera, in limited increments, to improve the exposure of your photos. Set the EV compensation to -1.0 EV to adjust the value one step darker and 1.0 EV to one step brighter.

Exif (Exchangeable Image File Format)
A specification to define an image file format for digital cameras created by the Japan Electronic Industries Development Association (JEIDA).

Exposure
The amount of light allowed to reach the camera's sensor. Exposure is controlled by a combination of the shutter speed, the aperture value, and ISO sensitivity.

Flash
A speed light that helps to create adequate exposure in low-light conditions.

Focal length
The distance from the middle of the lens to its focal point (in millimeters). Longer focal lengths result in narrower angles of view and the subject is magnified. Shorter focal lengths result in wider angles of view.

Image sensor
The physical part of a digital camera that contains a photosite for each pixel in the image. Each photosite records the brightness of the light that strikes it during an exposure. Common sensor types are CCD (Charge-coupled Device) and CMOS (Complementary Metal Oxide Semiconductor).

ISO sensitivity
The sensitivity of the camera to light, based on the equivalent film speed used in a film camera. At higher ISO sensitivity settings, the camera uses a higher shutter speed, which can reduce blur caused by camera shake and low light. However, images with high sensitivity are more susceptible to noise.

JPEG (Joint Photographic Experts Group)
A lossy method of compression for digital images. JPEG images are compressed to reduce their overall file size with minimal deterioration of the image resolution.

LCD (Liquid Crystal Display)
A visual display commonly used in consumer electronics. This display needs a separate backlight, such as CCFL or LED, to reproduce colors.

Macro
This feature allows you to capture close-up photos of very small objects. When using the macro feature, the camera can maintain a sharp focus on small objects at a near life-size ratio (1:1).

Metering
The metering refers to the way in which the camera measures the quantity of light to set the exposure.

MJPEG (Motion JPEG)
A video format which is compressed as a JPEG image.

Noise
Misinterpreted pixels in a digital image that may appear as misplaced or random, bright pixels. Noise usually occurs when photos are shot with a high sensitivity or when a sensitivity is automatically set in a dark place.

Optical zoom
This is a general zoom which can enlarge images with a lens and does not degrade the quality of images.

Quality
An expression of the rate of compression used in a digital image. Higher quality images have a lower rate of compression, which usually results in a larger file size.

Resolution
The number of pixels present in a digital image. High resolution images contain more pixels and typically show more detail than low resolution images.

Shutter speed

Shutter speed refers to the amount of time it takes to open and close the shutter, and it is an important factor in the brightness of a photo, as it controls the amount of light which passes through the aperture before it reaches the image sensor. A fast shutter speed allows less time to let light in and the photo becomes darker and more easily freezes subjects in motion.

Vignetting

A reduction of an image's brightness or saturation at the periphery (outer edges) compared to the center of the image. Vignetting can draw interest to subjects positioned in the center of an image.

White balance (color balance)

An adjustment of the intensities of colors (typically the primary colors red, green, and blue), in an image. The goal of adjusting the white balance, or color balance, is to correctly render the colors in an image.

Correct Disposal of This Product
(Waste Electrical & Electronic Equipment)
(Applicable in countries with separate collection systems)

This marking on the product, accessories or literature indicates that the product and its electronic accessories (e.g. charger, headset, USB cable) should not be disposed of with other household waste at the end of their working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate these items from other types of waste and recycle them responsibly to promote the sustainable reuse of material resources.

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Business users should contact their supplier and check the terms and conditions of the purchase contract. This product and its electronic accessories should not be mixed with other commercial wastes for disposal.

Planet First
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To protect natural resources and to promote material reuse, please separate batteries from other types of waste and recycle them through your local, free battery return system.

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CE